

Access DB# 1393B**SEARCH REQUEST FORM**

Scientific and Technical Information Center

Requester's Full Name: Arxanda W. W. W. Examiner #: 75663 Date: 12/2/04
 Art Unit: 1750 Phone Number 301-272-1337 Serial Number: 101789566
 Mail Box and Bldg/Room Location: 2EM 9D64 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Bib Sheet Attached

Inventors (please provide full names): _____

Earliest Priority Filing Date: _____

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Please search for a compd of formula (F). Thank you

STAFF USE ONLYSearcher: Usha Shrestia

Searcher Phone #: _____

Searcher Location: _____

Date Searcher Picked Up: 12/10/04Date Completed: 12/10/04Searcher Prep & Review Time: 50

Clerical Prep Time: _____

Online Time: 200**Type of Search**

NA Sequence (#) _____

AA Sequence (#) _____

Structure (#) _____

Bibliographic _____

Litigation _____

Fulltext _____

Patent Family _____

Other _____

Vendors and cost where applicableSTN \$ 518.80

Dialog _____

Questel/Orbit _____

Dr. Link _____

Lexis/Nexis _____

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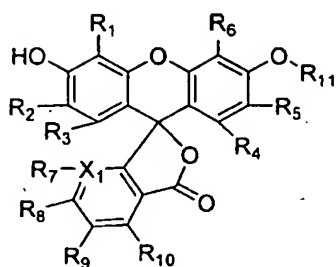
WWW/Internet _____

Other (specify) _____

8586AFP

WHAT IS CLAIMED IS:

1. A compound represented by the formula



(I)

wherein:

R₁, R₂, R₅, R₆, R₈, R₉ and R₁₀ are each independently selected from the group consisting of hydrogen, alkyl, substituted alkyl, alkenyl, substituted alkenyl, alkynyl, substituted alkynyl, heterocycloalkyl, substituted heterocycloalkyl, substituted carbonyl, acylamino, halogen, nitro, nitrilo, sulfonyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, oxygen, substituted oxygen, nitrogen, substituted nitrogen, sulfur and substituted sulfur;

R₃ and R₄ are each independently selected from the group consisting of hydrogen, alkyl having from 1 to 3 carbon atoms, substituted alkyl having from 1 to 3 carbon atoms, alkenyl having from 1 to 3 carbon atoms, substituted alkenyl having from 1 to 3 carbon atoms,

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alkynyl having from 1 to 3 carbon atoms, substituted alkynyl having from 1 to 3 carbon atoms, substituted oxygen, substituted nitrogen, and substituted sulfur;

R₇ is absent or selected from the group consisting of hydrogen, alkyl, substituted alkyl, alkenyl, substituted alkenyl, alkynyl, substituted alkynyl, heterocycloalkyl, substituted heterocycloalkyl, substituted carbonyl, acylamino, halogen, nitro, nitrilo, sulfonyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, oxygen, substituted oxygen, nitrogen, substituted nitrogen, sulfur and substituted sulfur;

R₁₁ is selected from the group consisting of hydrogen, alkyl, substituted alkyl, alkenyl, substituted alkenyl, alkynyl, substituted alkynyl, heterocycloalkyl, substituted heterocycloalkyl, substituted carbonyl, acylamino, sulfonyl, aryl, substituted aryl, heteroaryl and substituted heteroaryl; and

X₁ is carbon or nitrogen;

provided that at least one of R₁, R₂, R₅ and R₆ is selected from the group consisting of alkyl, substituted alkyl, alkenyl, substituted alkenyl, alkynyl, substituted alkynyl, heterocycloalkyl, substituted heterocycloalkyl, aryl, substituted aryl, heteroaryl and substituted heteroaryl.

2. A compound according to Claim 1 wherein X₁ is carbon, R₇, R₈, R₉ and R₁₀ are each hydrogen and R₁, R₂, R₃, R₄, R₅, R₆ and R₁₁ are as defined in Claim 1.

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3. A compound according to Claim 1 wherein R_{11} is alkyl or substituted and two of R_1 , R_2 , R_5 and R_6 are alkyl or substituted alkyl having between one and twelve carbon atoms and X_1 is carbon.

4. A compound according to Claim 1 wherein R_1 , R_3 , R_4 , R_6 , R_7 , R_8 , R_9 and R_{10} are each hydrogen, R_2 and R_5 are each alkyl having 6 carbon atoms, R_{11} is ethyl and X_1 is carbon.

5. A compound according to Claim 1 wherein R_1 , R_3 , R_4 , R_6 , R_7 , R_8 , R_9 and R_{10} are each hydrogen, R_2 and R_5 are each alkyl having 3 carbon atoms, R_{11} is benzyl and X is carbon.

6. A compound according to Claim 1 wherein R_1 , R_3 , R_4 , R_6 , R_7 , R_8 , R_9 and R_{10} are each hydrogen, R_2 and R_5 are each benzyl, R_{11} is $-\text{CH}_2\text{CH}_2\text{CH}(\text{CH}_3)_2$, and X_1 is carbon.

7. A color imaging member comprising a first image-forming layer including a compound according to Claim 1, said compound being in the crystalline form.

8. The imaging member as defined in Claim 7 and further including a substrate and at least a second color-forming layer, said second color-forming layer being capable of forming a color different from that formed by said first color-forming layer.

HCA PLUS
14
RTS
HCA

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9. The imaging member as defined in Claim 8 and further including a third color-forming layer, said third color-forming layer being capable of forming a color different from those formed by said first and second color-forming layers.

10. The imaging member as defined in Claim 9 wherein said color-forming layers form magenta, cyan and yellow color, respectively.

11. An imaging method comprising

(a) providing an imaging member as defined in Claim 7; and

(b) converting at least a portion of said compound to the liquid form in an imagewise pattern whereby an image is formed.

12. The method as defined in Claim 11 wherein step(b) comprises applying an imagewise pattern of thermal energy to said imaging member whereby at least a portion of said compound is converted to the liquid form and an image is formed.

13. The imaging method as defined in Claim 12 wherein said imaging member further includes a substrate and at least a second color-forming layer, said second color-forming layer being capable of forming a color different from that formed by said first color-forming layer.

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14. The imaging method as defined in Claim 13 wherein said imaging member further includes a third color-forming layer, said third color-forming layer being capable of forming a color different from those formed by said first and second color-forming layers.

15. The imaging method as defined in Claim 14 wherein said color-forming layers form magenta, cyan and yellow color, respectively.

10/789566 Examiner: WALKER, AMANDA GAU: 1752
Classification: 430/357.000 Inventor: CHEON, KAP-SOO, et al
Status: 30 - DOCKETED NEW CASE - READY FOR EXAMINATION
Title: NOVEL DYES AND USE THEREOF IN IMAGING MEMBERS AND METHODS

Bib Data report

Application Title: NOVEL DYES AND USE THEREOF IN IMAGING MEMBERS AND METHODS																
Application Num: 10789566 (in phx)	Filing Date: 02/27/2004															
Effective Filing Date: 02/27/2004																
(Location History) (Foreign/Continuity Data)																
Status: 30/DOCKETED NEW CASE - READY FOR EXAMINATION Status Date: 09/03/2004																
Patent Number: Not Issued	Issue Date: N/A Date of Abandonment: N/A															
Confirmation Number: 9239	PALM Location:															
Examiner: 75663 WALKER, AMANDA (Assignment Data) Group Art Unit: 1752																
Class/Subclass: 430/357.000																
State or Country: MASSACHUSETTS Sheets/Drawing: 0 Total Claims: 15																
Independent Claims: 1																
Inventors:																
<table><thead><tr><th>Last name, First name:</th><th>City:</th><th>Country or State:</th></tr></thead><tbody><tr><td>CHEON, KAP-SOO</td><td>SHREWSBURY</td><td>MASSACHUSETTS</td></tr><tr><td>CHU, PETER</td><td>ACTON</td><td>MASSACHUSETTS</td></tr><tr><td>FILOSA, MICHAEL</td><td>MEDFIELD</td><td>MASSACHUSETTS</td></tr><tr><td>TELFER, STEPHEN</td><td>ARLINGTON</td><td>MASSACHUSETTS</td></tr></tbody></table>		Last name, First name:	City:	Country or State:	CHEON, KAP-SOO	SHREWSBURY	MASSACHUSETTS	CHU, PETER	ACTON	MASSACHUSETTS	FILOSA, MICHAEL	MEDFIELD	MASSACHUSETTS	TELFER, STEPHEN	ARLINGTON	MASSACHUSETTS
Last name, First name:	City:	Country or State:														
CHEON, KAP-SOO	SHREWSBURY	MASSACHUSETTS														
CHU, PETER	ACTON	MASSACHUSETTS														
FILOSA, MICHAEL	MEDFIELD	MASSACHUSETTS														
TELFER, STEPHEN	ARLINGTON	MASSACHUSETTS														
Attorneys: ALL Attorney Docket No: 8586-AFP/GDM																

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FILE 'LREGISTRY' ENTERED AT 09:40:17 ON 10 DEC 2004

L1 STR
L2 STR L1
L3 STR L1
L4 STR L2

FILE 'REGISTRY' ENTERED AT 10:54:42 ON 10 DEC 2004

L5 50 S L4
L6 STR L2
L7 50 S L6
L8 8631 S L6 FULL
SAV L8 WAL566/A

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L9 1195 S CHEON ?/AU
L10 23478 S CHU ?/AU
L11 128 S FILOSA ?/AU
L12 413 S TELFER ?/AU
L13 0 S L9 AND L10 AND L11 AND L12

FILE 'HCAPLUS' ENTERED AT 11:57:48 ON 10 DEC 2004

L14 57 S CHEON K?/AU
L15 1169 S CHU P?/AU
L16 128 S FILOSA ?/AU
L17 413 S TELFER ?/AU
S L1 AND L2 AND L3 AND L4

FILE 'HCAPLUS' ENTERED AT 11:59:34 ON 10 DEC 2004

L18 0 S L14 AND L15 AND L16 AND L17
L19 0 S L14 AND L15
L20 1 S L14 AND L16
L21 0 S L14 AND L17
L22 0 S L15 AND L16
L23 3 S L15 AND L17
L24 3 S L16 AND L17
L25 7 S L18-L24
SEL L25 1-7 RN

FILE 'REGISTRY' ENTERED AT 12:04:30 ON 10 DEC 2004

L26 272 S E1-E272
L27 97 S C34H40O5
L28 1 S L26 AND L27
L29 12534 S 7938.12.8/RID
L30 36 S L29 AND L26
L31 0 S L1 SSS SAM SUB=L8
L32 STR L1
L33 1 S L32 SSS SAM SUB=L8
L34 2 S L32 SSS FUL SUB=L8

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L35 1 S L34

FILE 'REGISTRY' ENTERED AT 12:40:54 ON 10 DEC 2004

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L36 50 S L3 SSS SAM SUB=L8
L37 6577 S L3 SSS FUL SUB=L8
SAV L37 WAL566B/A
L38 9 S L30 AND L37

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L39 0 S L34
L40 0 S L38

FILE 'HCAPLUS' ENTERED AT 13:07:58 ON 10 DEC 2004

L41 1 S L38
E OPTICAL IMAGING DEVICES/CV
L42 31947 S E3
L43 147550 S IMAGING#
L44 352089 S DYE?
L45 20476 S L37
L46 41 S L45 AND L42
L47 654 S L45 AND L43
L48 6853 S L45 AND L44
L49 41 S L46 AND L47
L50 27 S L46 AND L48
L51 240 S L47 AND L48
L52 27 S L49 AND L51

FILE 'HCAPLUS' ENTERED AT 13:17:44 ON 10 DEC 2004

L53 27 S L51 AND L52

FILE 'REGISTRY' ENTERED AT 13:18:37 ON 10 DEC 2004

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L56 0 S L54 SSS SAM SUB=L37

L57 1 S L54 SSS FUL SUB=L37
 SAV L57 WAL566C/A

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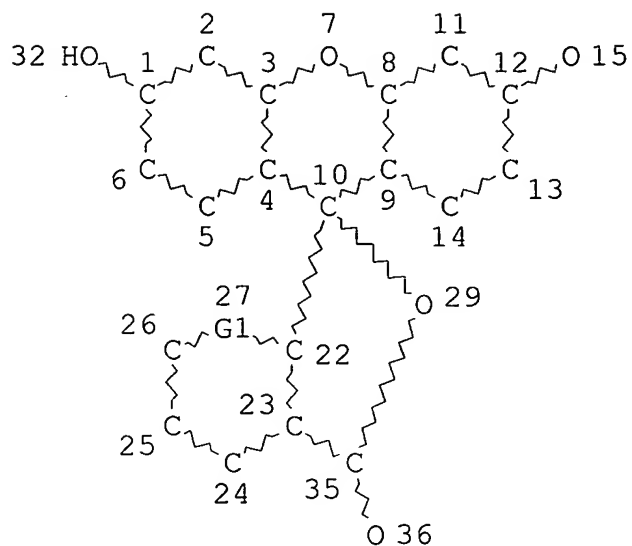
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L66 STR L61
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L68 37 S L65 SSS FUL SUB=L37
 SAV L68 WAL566D/A

FILE 'HCAPLUS' ENTERED AT 14:16:49 ON 10 DEC 2004
L69 34 S L68

FILE 'REGISTRY' ENTERED AT 14:17:20 ON 10 DEC 2004
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L71 110 S L66 SSS FUL SUB=L37
 SAV L71 WAL566E/A

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L73 1 S L72 AND L42
L74 5 S L72 AND L43
L75 34 S L72 AND L44
L76 1 S L75 AND (L50 OR L52 OR L53)
L77 875772 S OPTIC?
L78 14 S L72 AND L77
L79 10 S L78 AND (L42 OR L43 OR L44)
L80 18 S L41 OR L58 OR L73 OR L74 OR L76 OR L79 OR L78
L81 60 S (L50 OR L52 OR L53 OR L69)
L82 59 S (L50 OR L52 OR L53 OR L69) NOT L80
L83 21 S L75 NOT (L80 OR L82)

=> d l57 que stat
L3 STR



VAR G1=C/N

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DEFAULT ECLEVEL IS LIMITED

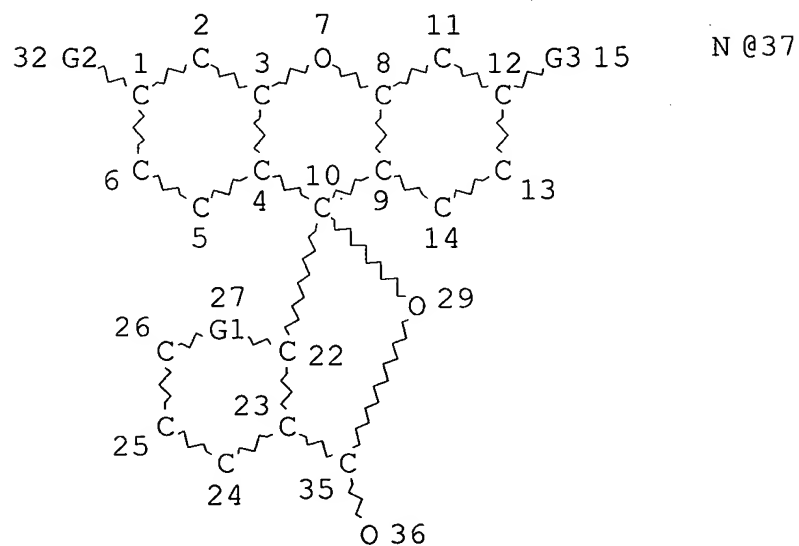
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NUMBER OF NODES IS 25

STEREO ATTRIBUTES: NONE

L6 STR

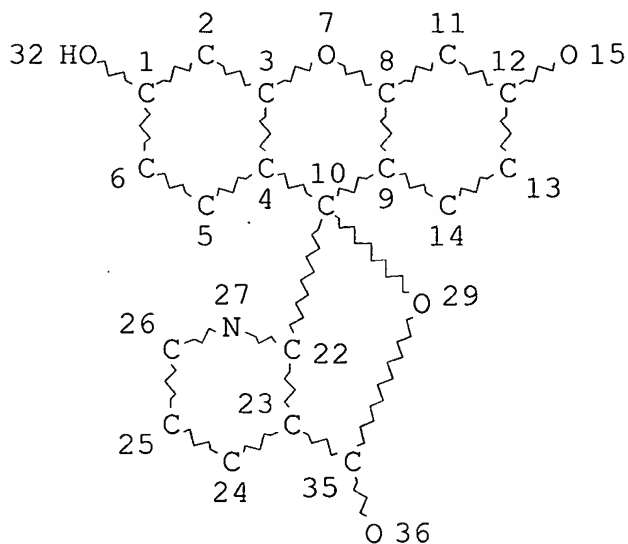


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VAR G2=N/O
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NODE ATTRIBUTES:
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DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

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NUMBER OF NODES IS 26

STEREO ATTRIBUTES: NONE
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L37 6577 SEA FILE=REGISTRY SUB=L8 SSS FUL L3
L54 STR



NODE ATTRIBUTES:
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DEFAULT ECLEVEL IS LIMITED

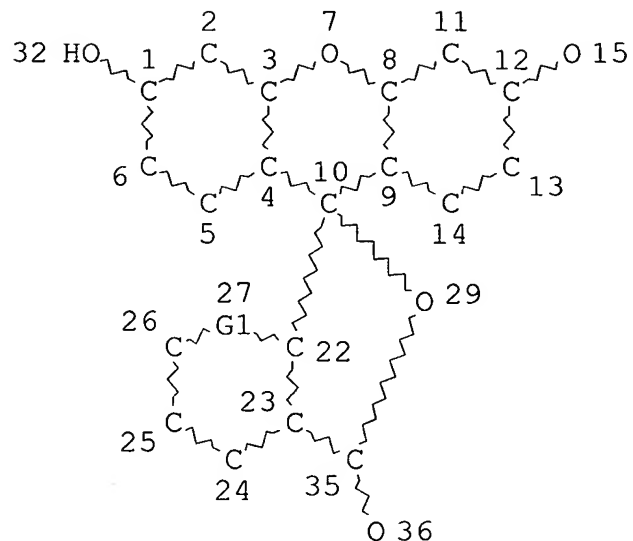
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STEREO ATTRIBUTES: NONE
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100.0% PROCESSED 30 ITERATIONS
SEARCH TIME: 00.00.01

1 ANSWERS

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L3 STR



VAR G1=C/N

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DEFAULT ECLEVEL IS LIMITED

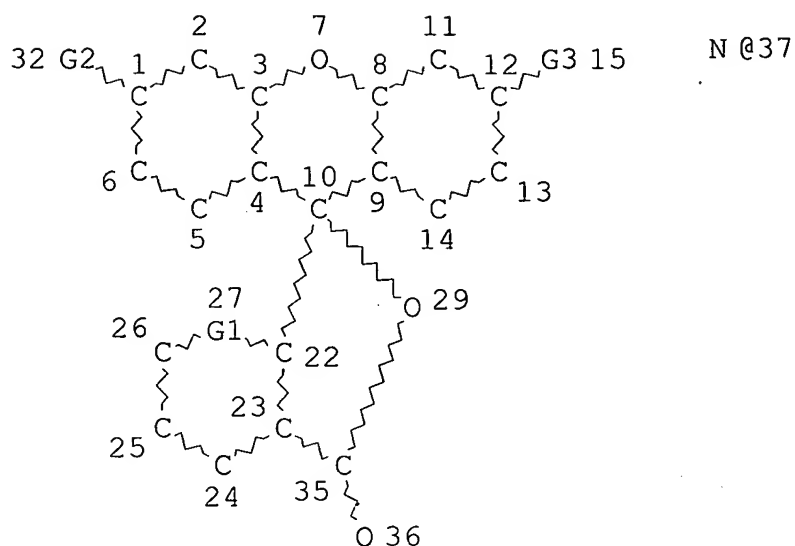
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STEREO ATTRIBUTES: NONE

L6 STR



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VAR G2=N/O

VAR G3=O/37

NODE ATTRIBUTES:

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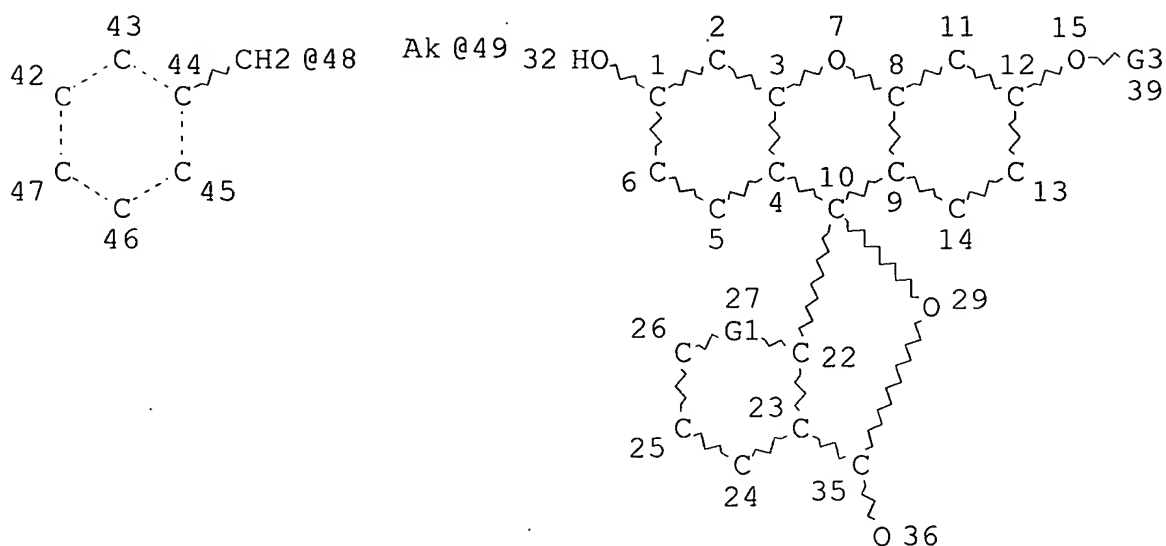
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L65 STR



VAR G1=C/N

VAR G3=48/49

NODE ATTRIBUTES:

CONNECT IS E1 RC AT 49

DEFAULT MLEVEL IS ATOM

GGCAT IS SAT AT 49

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

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NUMBER OF NODES IS 34

STEREO ATTRIBUTES: NONE

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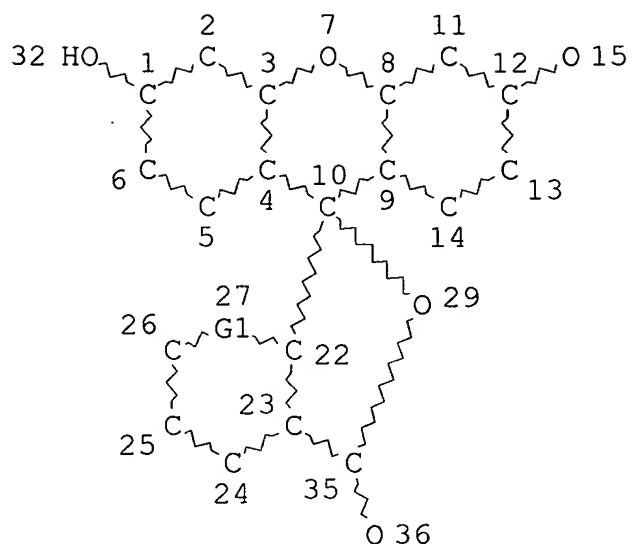
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37 ANSWERS

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L3 STR



VAR G1=C/N

NODE ATTRIBUTES:

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DEFAULT ECLEVEL IS LIMITED

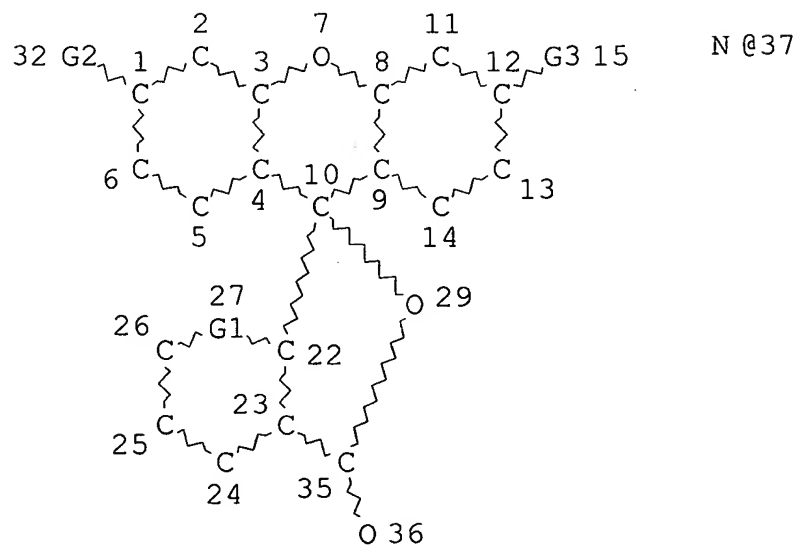
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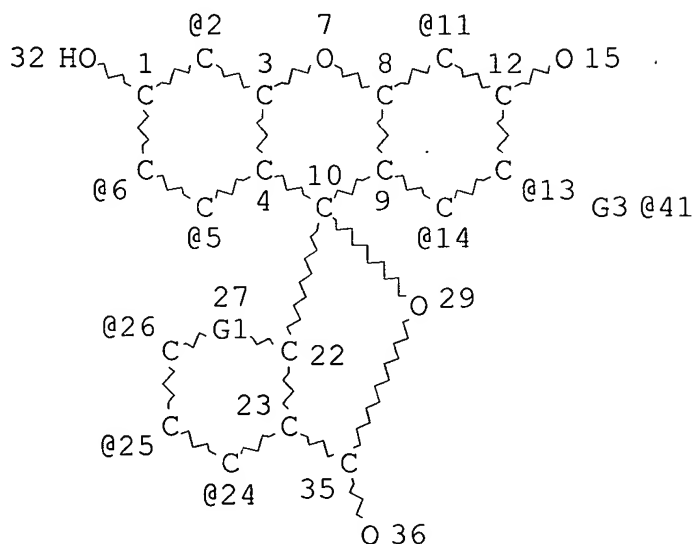
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STEREO ATTRIBUTES: NONE

L6 STR



Ak @49



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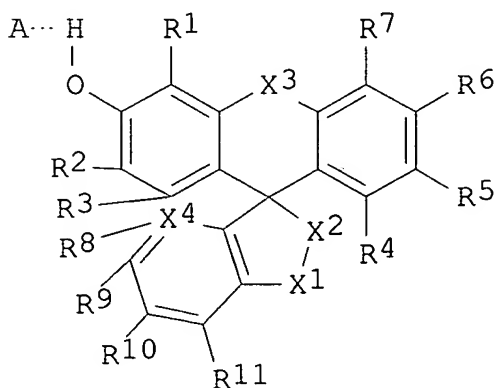
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=> d 180 1-18 cbib abs hitstr hitind

L80 ANSWER 1 OF 18 HCAPLUS COPYRIGHT 2004 ACS on STN
2004:722950 Document No. 141:244924 **Dye** compounds exhibiting
different colors in crystalline form and in liquid form and their use
in
imaging members and imaging method. Allen, Richard M.;
Filosa, Michael P.; Telfer, Stephen J. (USA). U.S. Pat. Appl. Publ.
US 2004171817 A1 20040902, 9 pp. (English). CODEN: USXXCO.
APPLICATION: US
2004-789600 20040227. PRIORITY: US 2003-PV451208 20030228.
GI



AB The **dye** compound I (R1-5, R7 = H, (un)substituted alkyl, (un)substituted alkenyl, (un)substituted alkynyl, (un)substituted heterocycloalkyl, substituted carbonyl, acylamino, halogen, nitro,

nitrilo, sulfonyl, aryl, substituted aryl, (un)substituted heteroaryl, (un)substituted oxygen, (un)substituted nitrogen, and (un)substituted sulfur; R6 = halogen, (un)substituted oxygen, (un)substituted nitrogen and

(un)substituted sulfur; R8-11 = H, (un)substituted alkyl, (un)substituted alkenyl, (un)substituted alkynyl, (un)substituted heterocycloalkyl, substituted carbonyl, acylamino, halogen, nitro, nitrilo, sulfonyl, aryl, substituted aryl, (un)substituted heteroaryl, (un)substituted oxygen, (un)substituted nitrogen and (un)substituted sulfur; X1 = carbonyl, methylene, substituted methylene and sulfonyl; X2 = oxygen, (un)substituted nitrogen; X3 = oxygen, sulfur and (un)substituted nitrogen; X4 = carbon, nitrogen; and A = hydrogen-bond accepting group)

are formed between hydrogen bond acceptors and phenolic dye compds. The imaging method comprises (a) providing an imaging member comprising a first image-forming layer including the dye compound in the crystalline form; and (b) converting at least a

portion of the compound to the liquid form in an imagewise pattern whereby an image is formed.

IT 748802-87-1 748802-89-3 748802-91-7
748802-93-9 748802-95-1 748802-97-3
748802-99-5 748803-01-2 748803-03-4

RL: TEM (Technical or engineered material use); USES (Uses)
(dye compds. exhibiting different colors in crystalline form and in liquid form for imaging members)

RN 748802-87-1 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one, 3'-hydroxy-6'-(phenylmethoxy)-, compd. with 1,10-phenanthroline (1:1) (9CI) (CA

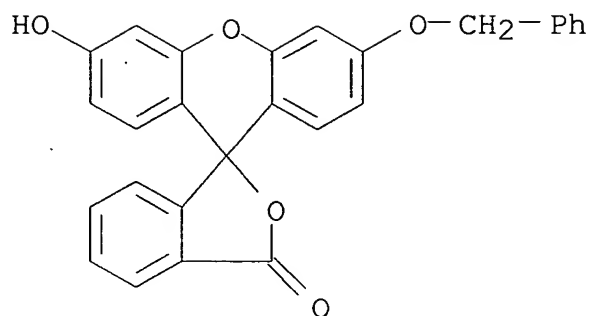
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NAME)

CM 1

CRN 327594-34-3

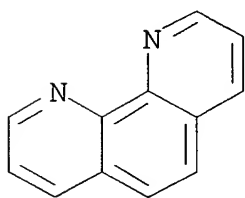
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CM 2

CRN 66-71-7

CMF C12 H8 N2



RN 748802-89-3 HCAPLUS

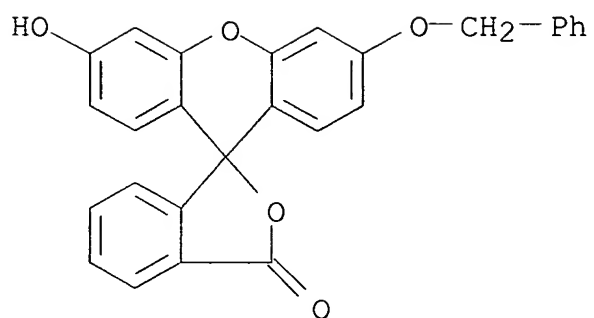
CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one, 3'-hydroxy-6'-(phenylmethoxy)-, compd. with 2,9-dimethyl-1,10-phenanthroline (1:1)
(9CI)

(CA INDEX NAME)

CM 1

CRN 327594-34-3

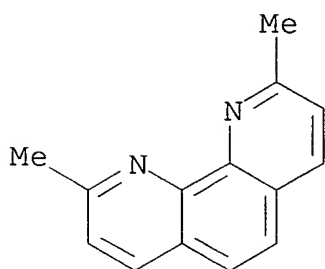
CMF C27 H18 O5



CM 2

CRN 484-11-7

CMF C14 H12 N2



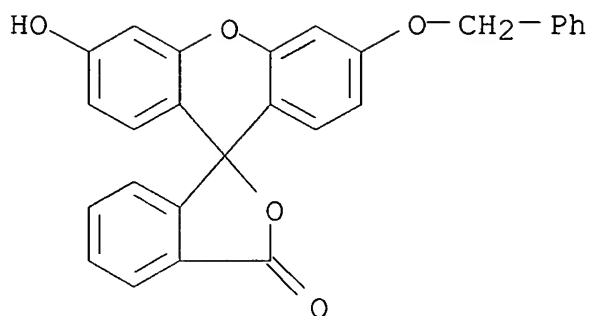
RN 748802-91-7 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one, 3'-hydroxy-6'-(phenylmethoxy)-, compd. with 4,4'-bipyridine (2:1) (9CI) (CA INDEX NAME)

CM 1

CRN 327594-34-3

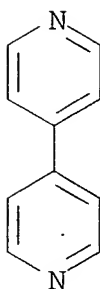
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CM 2

CRN 553-26-4

CMF C10 H8 N2



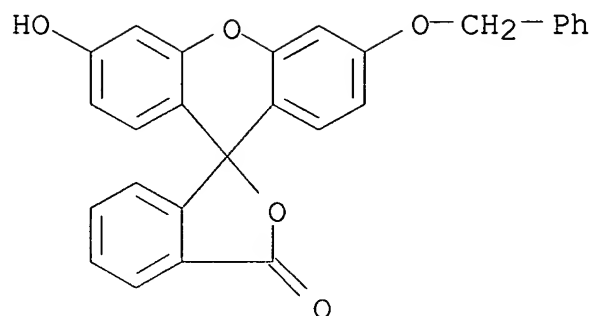
RN 748802-93-9 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one, 3'-hydroxy-6'-(phenylmethoxy)-, compd. with pyrazine (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 327594-34-3

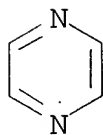
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CM 2

CRN 290-37-9

CMF C4 H4 N2



RN 748802-95-1 HCAPLUS

CN 2-Pyridinecarboxylic acid, ethyl ester, compd. with 3'-hydroxy-6'-(phenylmethoxy)spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one (1:1)

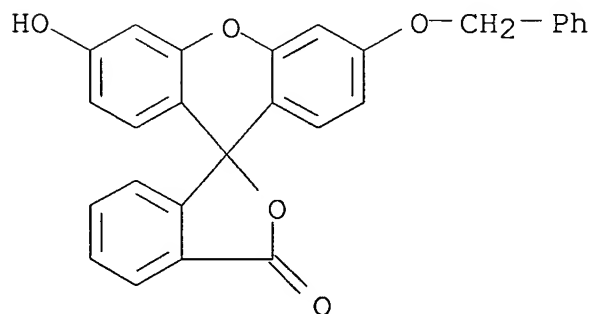
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(CA INDEX NAME)

CM 1

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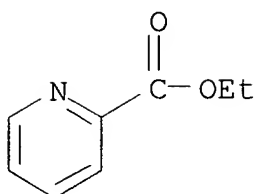
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CM 2

CRN 2524-52-9

CMF C8 H9 N O2



RN 748802-97-3 HCAPLUS

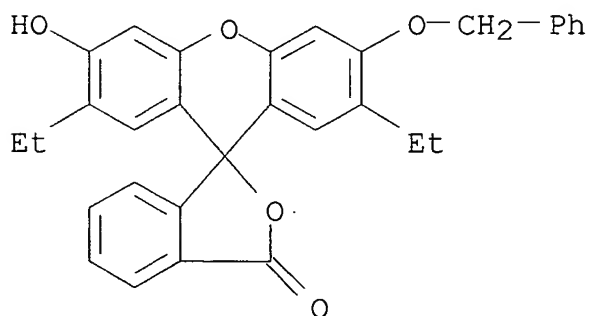
CN Spiro[isobenzofuran-1,9'-[9H]xanthen]-3-one,
2',7'-diethyl-3'-hydroxy-6'-

(phenylmethoxy)-, compd. with 4,4'-bipyridine (2:1) (9CI) (CA INDEX
NAME)

CM 1

CRN 748802-96-2

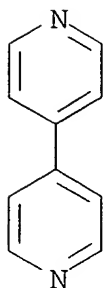
CMF C31 H26 O5



CM 2

CRN 553-26-4

CMF C10 H8 N2



RN 748802-99-5 HCAPLUS

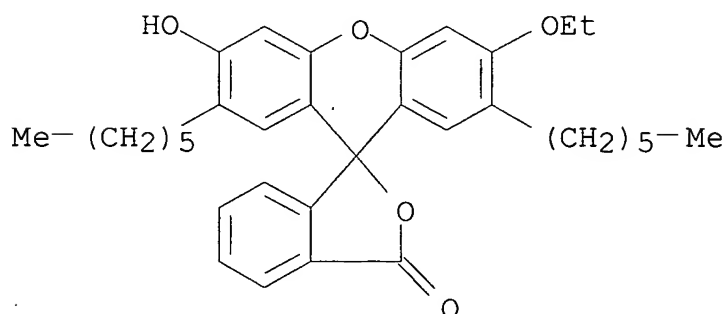
CN Spiro[isobenzofuran-1,9'-[9H]xanthen]-3-one,
3'-ethoxy-2',7'-dihexyl-6'-

hydroxy-, compd. with 4,4'-bipyridine (2:1) (9CI) (CA INDEX NAME)

CM 1

CRN 748802-98-4

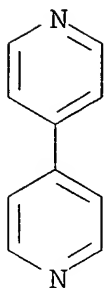
CMF C34 H40 O5



CM 2

CRN 553-26-4

CMF C10 H8 N2



RN 748803-01-2 HCAPLUS

CN Spiro[isobenzofuran-1,9'-[9H]xanthen]-3-one,
2',7'-diethyl-3'-hydroxy-6'-

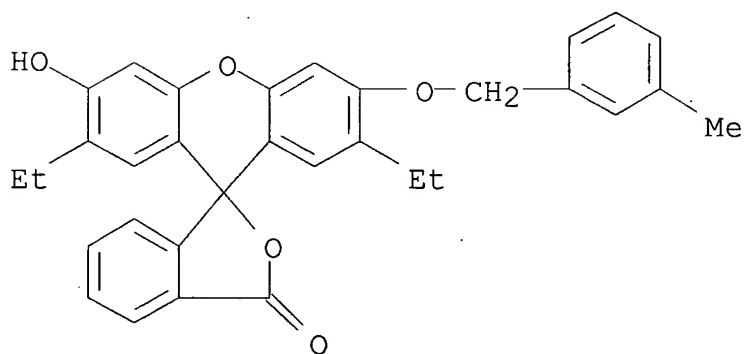
[(3-methylphenyl)methoxy]-, compd. with 4,4'-bipyridine (2:1) (9CI)
(CA

INDEX NAME)

CM 1

CRN 748803-00-1

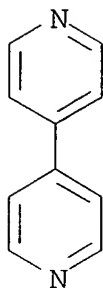
CMF C32 H28 O5



CM 2

CRN 553-26-4

CMF C10 H8 N2



RN 748803-03-4 HCAPLUS

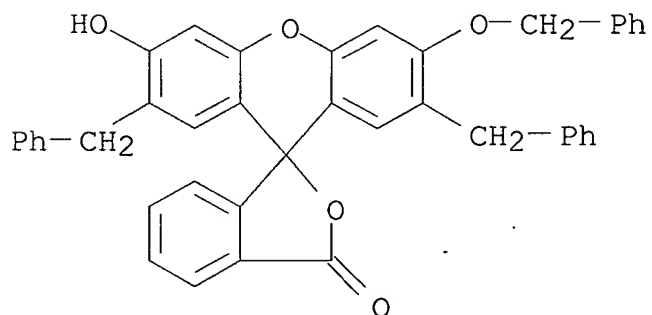
CN Spiro[isobenzofuran-1,9'-[9H]xanthen]-3-one,
3'-hydroxy-6'-(phenylmethoxy)-

2',7'-bis(phenylmethyl)-, compd. with 4,4'-bipyridine (2:1) (9CI) (CA
INDEX NAME)

CM 1

CRN 748803-02-3

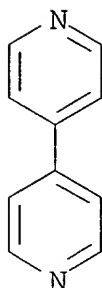
CMF C41 H30 O5



CM 2

CRN 553-26-4

CMF C10 H8 N2



IC ICM C09B056-00
ICS G03C005-18
NCL 534653000; 156235000; 430151000
CC 41-5 (Dyes, Organic Pigments, Fluorescent Brighteners, and
Photographic
Sensitizers)
ST hydrogen bond acceptor phenolic **dye** compd; color different cryst
liq form **imaging**
IT **Imaging**
Optical imaging devices
(**dye** compds. exhibiting different colors in crystalline form and
in liquid form for **imaging** members)
IT **Dyes**
(**dye** complexes exhibiting different colors in crystalline form and
in liquid form and their use in **imaging** members and
imaging method)
IT 748802-87-1 748802-89-3 748802-91-7
748802-93-9 748802-95-1 748802-97-3
748802-99-5 748803-01-2 748803-03-4
748803-05-6 748803-07-8 748803-09-0 748803-11-4 748803-13-6
748803-15-8 748803-17-0 748803-19-2 748803-21-6 748803-23-8
748803-25-0 748803-26-1 748803-27-2 748803-28-3 748803-29-4
748803-30-7 748803-31-8 748803-32-9 748803-33-0 748803-34-1
748803-35-2 748803-36-3 748803-37-4 748803-38-5 748803-39-6
748803-40-9
RL: TEM (Technical or engineered material use); USES (Uses)
(**dye** compds. exhibiting different colors in crystalline form and
in liquid form for **imaging** members)

L80 ANSWER 2 OF 18 HCAPLUS COPYRIGHT 2004 ACS on STN
2004:502261 Document No. 141:98470 Fluorescent pH sensors with
negligible
sensitivity to ionic strength. Weidgans, Bernhard M.; Krause,
Christian;
Klimant, Ingo; Wolfbeis, Otto S. (Institute of Analytical Chemistry,
Chemo- and Biosensors, University of Regensburg, Regensburg, D-93040,

Germany). Analyst (Cambridge, United Kingdom), 129(7), 645-650 (English)

2004. CODEN: ANALAO. ISSN: 0003-2654. Publisher: Royal Society of Chemistry.

AB **Optical** pH determination has the fundamental disadvantage of measuring a

signal that depends on the ionic strength of the sample. The problem originates from the complex relation between the proton activity and the

concentration of the pH-sensitive **dye**. The effect of ionic strength on

the signal depends on the charge of the indicator and its environment, e.g. the immobilization matrix. The authors present novel lipophilic fluorescein esters carrying one neg. charge. They are embedded in an uncharged, highly proton-permeable hydrogel to give **optical** pH sensors that show a negligible cross-sensitivity towards ionic strength.

The fluorescent **dyes** differ in their substituents. This variation of substituents results in dissociation consts. between 5.5 and 8.5.

The indicators were made lipophilic by esterification of the carboxy group

with a C18 alkyl chain. Since their spectral properties are quite similar, two indicators may be used in one sensor. This results in an **optical** pH sensor with a dynamic range that extends from pH 4.5 to 8.

IT 124119-87-5 714951-32-3

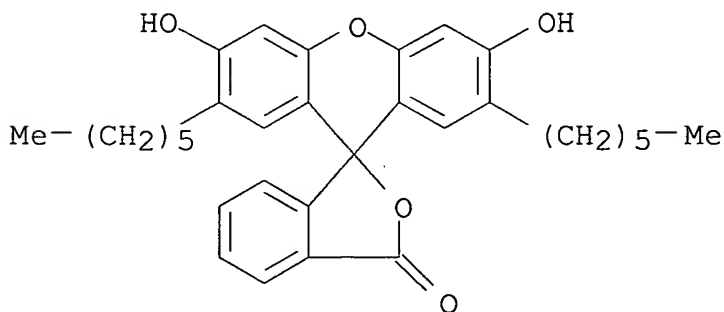
RL: ARG (Analytical reagent use); DEV (Device component use); ANST (Analytical study); USES (Uses)

(fluorescent pH sensors with negligible sensitivity to ionic strength

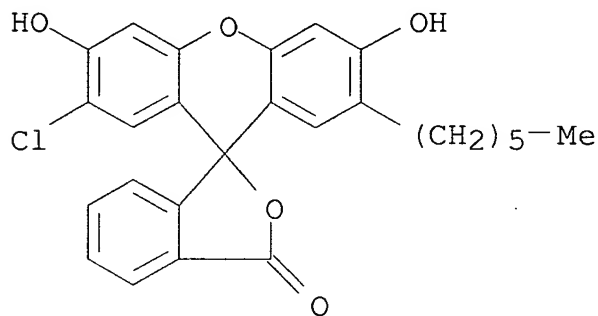
based on fluorescent **dyes**)

RN 124119-87-5 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one, 2',7'-dihexyl-3',6'-dihydroxy- (9CI) (CA INDEX NAME)



RN 714951-32-3 HCAPLUS
CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one,
2'-chloro-7'-hexyl-3',6'-
dihydroxy- (9CI) (CA INDEX NAME)



CC 79-2 (Inorganic Analytical Chemistry)

IT Ionic strength

Optical sensors

pH

(fluorescent pH sensors with negligible sensitivity to ionic strength)

IT Fluorescent **dyes**

(fluorescent pH sensors with negligible sensitivity to ionic strength)

based on fluorescent **dyes**)

IT 76-54-0 2321-03-1 **124119-87-5 714951-32-3**

714951-33-4 714951-34-5 714951-35-6 714951-36-7 714951-37-8

RL: ARG (Analytical reagent use); DEV (Device component use); ANST
(Analytical study); USES (Uses)

(fluorescent pH sensors with negligible sensitivity to ionic strength)

based on fluorescent **dyes**)

L80 ANSWER 3 OF 18 HCAPLUS COPYRIGHT 2004 ACS on STN

2004:351274 Document No. 140:357221 High purity phthaleines and their
preparation process using an organic ester as cyclocondensation
solvent

and a strong acid to precipitate them. Tran, Guyon Joanne;

Scherninski,

Francois (Laboratoires Synth-Innove, Fr.). Fr. Demande FR 2846331 A1
20040430, 41 pp. (French). CODEN: FRXXBL. APPLICATION: FR

2002-13528

20021029.

GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB The invention is related to the preparation of high purity phthaleines I (< 1% in weight, especially < 0.2% in weight impurities), in particular fluoresceines, by cyclocondensation of phthalic anhydride is with a naphthol or phenol in an organic ester and in-situ acidulation of the crystalline product with a strong acid. These high purity phthaleines are useful for medical **imaging** and in the field of biotechnol. For example, condensation of phthalic anhydride with resorcinol in Me benzoate at 200° for 6 h gave 78% red crystals of crude fluoresceine (II), which was dissolved in EtOH/acetone, acidulated with concentrated H₂SO₄, to give 99.8% purity II after washing the yellow crystals with EtOH/acetone/H₂O. Similarly, 4',5'-dimethylfluoresceine and 4',5'-dihydroxyfluoreceine were prepared in high purity.

IT 118797-71-0P

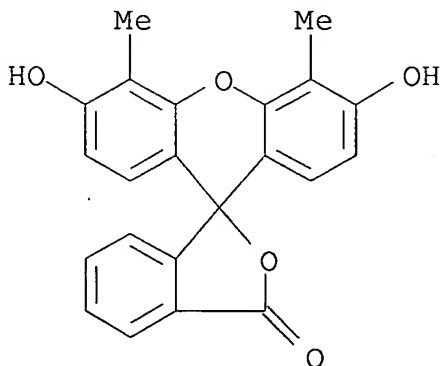
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)

(phthalein product; preparation of high purity phthaleines using an organic

ester as cyclocondensation solvent and a strong acid to precipitate them)

RN 118797-71-0 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one,
3',6'-dihydroxy-4',5'-
dimethyl- (9CI) (CA INDEX NAME)



IC ICM C07D493-10
ICS A61K031-353; A61K049-00; C07D311-00; C07D307-00
CC 27-20 (Heterocyclic Compounds (One Hetero Atom))
Section cross-reference(s): 1, 9, 41, 45
IT 2103-64-2P 118797-71-0P
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP
(Preparation)
(phthalein product; preparation of high purity phthaleines using
an organic
ester as cyclocondensation solvent and a strong acid to
precipitate them)

L80 ANSWER 4 OF 18 HCAPLUS COPYRIGHT 2004 ACS on STN
2004:143027 Document No. 140:201792 Color-coded layer-by-layer
microcapsules
serving as combinatorial analysis libraries and as specific
optical sensors. Daehne, Lars; Baude, Barbara; Voigt, Andreas
(Capsulation Nanoscience Ag, Germany). PCT Int. Appl. WO 2004014540

A1 20040219, 39 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ,
BA,
BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC,
EE,
ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP,
KR,
KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI,
NO,
NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
TN,
TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF,
BJ,
CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU,
MC,
ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (German). CODEN: PIXXD2.
APPLICATION: WO 2003-EP8376 20030729. PRIORITY: DE 2002-10236409
20020802; DE 2003-10315846 20030402.

AB Capsules are described which have diams. of <100 μ m and which are
coated with ≥ 3 polyelectrolyte layers, ≥ 1 of the layers
being marked with a **dye**. Different fluorescent **dyes**
may be covalently bound in a defined amount to the polyelectrolytes.

The
amount of **dye** may be controlled by varying the label content or by
the codeposition of unlabeled polymers. Different **dye** layers
may be separated from one another by intermediate layers thereby
suppressing
unwanted interactions. Alternately, a fluorescence resonant energy
transfer (FRET) signal may be generated between suitable **dye**

pairs situated at short distances (0-6 nm) from one another. This signal may be controlled independently of the dye concentration by the number of intermediate layers. The capsule coding may be read out by the variation in the excitation wavelength and emission wavelength. Macromols. may be immobilized inside the capsules and extract complementary substances out of solns. Particles coated in such a manner or hollow capsules may be used as sensors after inserting a sensitive intermediate layer. Changes in the size/structure of the intermediate layer may be detected either by FRET between adjacent, labeled polyelectrolyte layers or by the self-quenching/aggregate fluorescence of dyes in the sensitive layer. Systems for identifying or marking materials comprising ≥ 2 of types of capsules are also described.

IT 661466-06-4

RL: ARU (Analytical role, unclassified); TEM (Technical or engineered material use); ANST (Analytical study); USES (Uses)

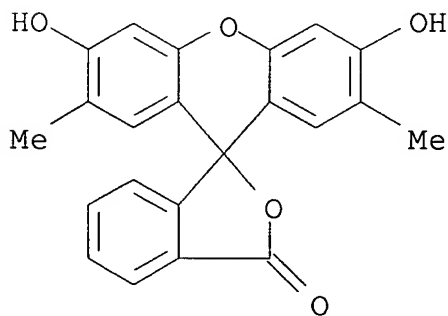
(color-coded layer-by-layer microcapsules useful as combinatorial anal.

libraries and as specific optical markers)

RN 661466-06-4 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one,
ar-isothiocyanato-3',6'-

dihydroxy-2',7'-dimethyl- (9CI) (CA INDEX NAME)



D1-N=C=S

IC ICM B01J013-02

ICS B01J013-22
CC 48-11 (Unit Operations and Processes)
Section cross-reference(s): 9, 63, 79, 80
IT Acid-base indicators
Colorimetric indicators
Combinatorial library
Fluorescent indicators
Polyelectrolytes
(color-coded layer-by-layer microcapsules useful as combinatorial
anal. libraries and as specific **optical** markers)
IT Capsules
(color-coded; color-coded layer-by-layer microcapsules useful as
combinatorial anal. libraries and as specific **optical**
markers)
IT 50851-57-5 71550-12-4, Poly(allylamine hydrochloride) 661465-58-3
661466-06-4 661466-07-5
RL: ARU (Analytical role, unclassified); TEM (Technical or engineered
material use); ANST (Analytical study); USES (Uses)
(color-coded layer-by-layer microcapsules useful as combinatorial
anal. libraries and as specific **optical** markers)
L80 ANSWER 5 OF 18 HCAPLUS COPYRIGHT 2004 ACS on STN
2003:49660 Document No. 138:250988 ZP4, an improved neuronal Zn²⁺
sensor of
the zinpyr family. Burdette, Shawn C.; Frederickson, Christopher J.;
Bu,
Weiming; Lippard, Stephen J. (Department of Chemistry, Massachusetts
Institute of Technology, Cambridge, MA, 02139, USA). Journal of the
American Chemical Society, 125(7), 1778-1787 (English) 2003. CODEN:
JACSAT. ISSN: 0002-7863. Publisher: American Chemical Society.
AB A second-generation fluorescent sensor for Zn²⁺ from the Zinpyr
family,
ZP4, has been synthesized and characterized. ZP4 (Zinpyr-4,
9-(o-carboxyphenyl)-2-chloro-5-[2-(bis(2-pyridylmethyl)aminomethyl)-N-
methylaniline]-6-hydroxy-3-xanthanone) is prepared via a convergent
synthetic strategy developed from previous studies with these compds.
ZP4,
like its predecessors, has excitation and emission wavelengths in the
visible range (.apprx.500 nm), a dissociation constant (K_d) for Zn²⁺
of less
than 1 nM and a high quantum yields (Φ = .apprx.0.4), making it well
suited for biol. applications. A 5-fold fluorescent enhancement is
observed
under simulated physiol. conditions corresponding to the binding of
the
Zn²⁺ cation to the sensor, which inhibits a photoinduced electron
transfer

(PET) quenching pathway. The metal-binding stereochem. of ZP4 was evaluated through the synthesis and x-ray structural characterization of

[M(BPAMP)(H₂O)_n]⁺ complexes, where BPAMP is [2-{bis(2-pyridylmethyl)aminomethyl}-N-methylaniline]-phenol and M = Mn²⁺, Zn²⁺ (n = 1) or Cu²⁺ (n = 0).

IT **389625-48-3P**

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);

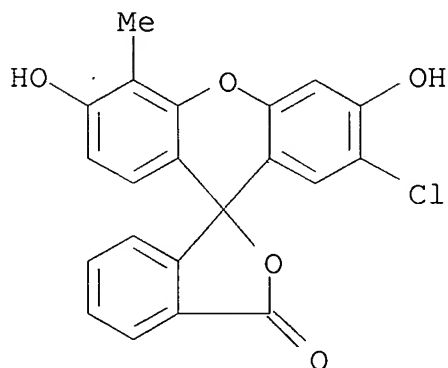
RACT

(Reactant or reagent)

(ZP4, an improved neuronal Zn²⁺ sensor of zinpyr family)

RN 389625-48-3 HCAPLUS

CN Spiro[isobenzofuran-1(3H), 9'-[9H]xanthen]-3-one,
2'-chloro-3',6'-dihydroxy-
5'-methyl- (9CI) (CA INDEX NAME)



CC 9-14 (Biochemical Methods)

IT **Imaging**

(fluorescent; ZP4, an improved neuronal Zn²⁺ sensor of zinpyr family)

IT 2513-23-7P **389625-48-3P** 389625-49-4P 389625-50-7P

502467-15-4P 502467-17-6P 502467-19-8P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);

RACT

(Reactant or reagent)

(ZP4, an improved neuronal Zn²⁺ sensor of zinpyr family)

L80 ANSWER 6 OF 18 HCAPLUS COPYRIGHT 2004 ACS on STN

2002:881890 Document No. 139:97443 Production, characteristics and applications of fluorescent PEBBLE nanosensors: potassium, oxygen, calcium

and pH **imaging** inside live cells. Brasuel, Murphy; Kopelman, Raoul; Aylott, Jonathan W.; Clark, Heather; Xu, Hao; Hoyer, Marion;

Miller, Terry J.; Tjalkens, Ron; Philbert, Martin A. (Department of Chemistry, The University of Michigan, Ann Arbor, MI, 48109, USA). Sensors and Materials, 14(6), 309-338 (English) 2002. CODEN: SENMER. ISSN: 0914-4935. Publisher: Scientific Publishing Division of MYU

K.K..

AB A novel platform for the intracellular monitoring of key biol. components

has been developed, using three different nanoparticle fabrication technologies. These nano-optodes are termed PEBBLES (Probes

Encapsulated

By Biol. Localized Embedding). The sensors, based on polyacrylamide, cross-linked decyl methacrylate, and silica-based sol-gel, have been characterized in aqueous solution and also tested in intracellular surroundings.

Each matrix can be combined with specific "free dyes", ionophores, or enzymes to produce sensors selective for the biol. component of interest. Spherical sensors less than 600 nm in

diameter (and

reducible to below 100 nm) have been made from all three matrixes.

Acrylamide-based sensors have been used to monitor intracellular pH

and

calcium (with proven selectivity over Mg^{2+}). Decyl methacrylate has

been

successfully applied to intracellular potassium monitoring with probes 1,000 times more selective for potassium than sodium. Sol-gel has

proven

useful for monitoring intracellular oxygen at physiol. interesting

concns.

PEBBLES, with a wide range of both simple and complex sensing schemes, provide a unique tool for minimally invasive intracellular monitoring, with many significant advantages over free dyes as well as over fiber-optic sensors.

IT 100111-02-2, 5-Carboxy-4',5'-dimethylfluorescein

100111-03-3, 6-Carboxy-4',5'-dimethylfluorescein

RL: ARG (Analytical reagent use); DEV (Device component use); ANST (Analytical study); USES (Uses)

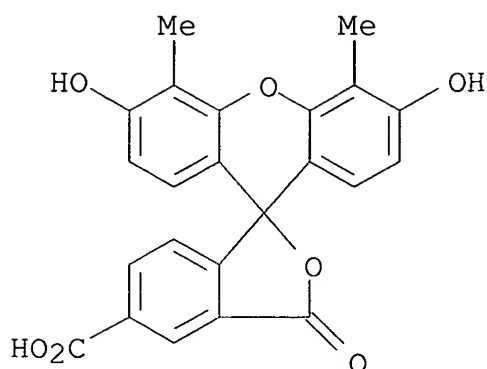
(entrapped fluorescent pH sensitive dye; production,

characterization and applications of PEBBLE nanooptrodes containing entrapped fluorescent probes for potassium, oxygen, calcium and pH

imaging inside live cells)

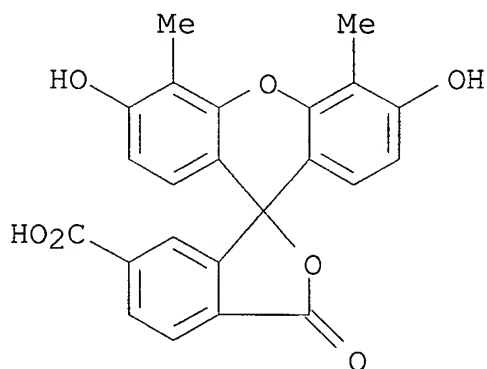
RN 100111-02-2 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthene]-5-carboxylic acid, 3',6'-dihydroxy-4',5'-dimethyl-3-oxo- (9CI) (CA INDEX NAME)



RN 100111-03-3 HCAPLUS

CN Spiro[isobenzofuran-1(3H), 9'-[9H]xanthene]-6-carboxylic acid,
3',6'-dihydroxy-4',5'-dimethyl-3-oxo- (9CI) (CA INDEX NAME)



CC 9-1 (Biochemical Methods)

IT Biosensors

Optrodes

(fluorescent, PEBBLE (Probes Encapsulated By Biol. Localized Embedding); production, characterization and applications of PEBBLE nanooptrodes containing entrapped fluorescent probes for

potassium, oxygen,

calcium and pH **imaging** inside live cells)

IT Polyoxyalkylenes, uses

RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)

(in sol-gel PEBBLE; production, characterization and applications of PEBBLE

nanooptrodes containing entrapped fluorescent probes for

potassium, oxygen,

calcium and pH **imaging** inside live cells)

IT Animal cell
Fluorescent indicators
Fluorometry
pH
(production, characterization and applications of PEBBLE
nanooptrodes
containing entrapped fluorescent probes for potassium, oxygen,
calcium and
pH **imaging** inside live cells)

IT 100111-02-2, 5-Carboxy-4',5'-dimethylfluorescein
100111-03-3, 6-Carboxy-4',5'-dimethylfluorescein 131071-70-0
131084-60-1 132234-44-7, ETH5350 145103-60-2, 5-
Carboxynaphthofluorescein 145103-61-3, 6-Carboxynaphthofluorescein
202872-98-8 445289-99-6
RL: ARG (Analytical reagent use); DEV (Device component use); ANST
(Analytical study); USES (Uses)
(entrapped fluorescent pH sensitive **dye**; production,
characterization and applications of PEBBLE nanooptrodes containing
entrapped fluorescent probes for potassium, oxygen, calcium and pH
imaging inside live cells)

IT 99348-39-7, BME-44
RL: ARG (Analytical reagent use); DEV (Device component use); ANST
(Analytical study); USES (Uses)
(entrapped fluorescent potassium probe; production,
characterization and
applications of PEBBLE nanooptrodes containing entrapped
fluorescent probes
for potassium, oxygen, calcium and pH **imaging** inside live
cells)

IT 138067-55-7, Calcium green 138067-56-8, Calcium orange
RL: ARG (Analytical reagent use); DEV (Device component use); ANST
(Analytical study); USES (Uses)
(entrapped fluorescent probe; production, characterization and
applications
of PEBBLE nanooptrodes containing entrapped fluorescent probes for
potassium, oxygen, calcium and pH **imaging** inside live cells)

IT 60311-02-6, Sulforhodamine 101
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES
(Uses)
(entrapped fluorescent reference probe; production,
characterization and
applications of PEBBLE nanooptrodes containing entrapped
fluorescent probes
for potassium, oxygen, calcium and pH **imaging** inside live
cells)

IT 105560-52-9
RL: BUU (Biological use, unclassified); DEV (Device component use);
BIOL

(Biological study); USES (Uses)
(entrapped, ionic additive; production, characterization and applications of PEBBLE nanooptrodes containing entrapped fluorescent probes for potassium, oxygen, calcium and pH **imaging** inside live cells)
IT 122-62-3, Dioctyl sebacate 3179-47-3, Decyl methacrylate
58264-26-9,
Hexanedioldimethacrylate
RL: ARU (Analytical role, unclassified); DEV (Device component use);
ANST
(Analytical study); USES (Uses)
(in decyl methacrylate PEBBLE nanosensor; production, characterization and applications of PEBBLE nanooptrodes containing entrapped fluorescent probes for potassium, oxygen, calcium and pH **imaging** inside live cells)
IT 110-26-9 9003-05-8, PolyAcrylamide
RL: ARU (Analytical role, unclassified); DEV (Device component use);
ANST
(Analytical study); USES (Uses)
(in polyacrylamide PEBBLE nanosensor; production, characterization and applications of PEBBLE nanooptrodes containing entrapped fluorescent probes for potassium, oxygen, calcium and pH **imaging** inside live cells)
IT 9004-54-0D, Dextran, conjugate with Oregon Green 488 195136-58-4D, Oregon Green 488, dextran conjugate
RL: ARG (Analytical reagent use); DEV (Device component use); ANST
(Analytical study); USES (Uses)
(in sol-gel PEBBLE; production, characterization and applications of PEBBLE nanooptrodes containing entrapped fluorescent probes for potassium, oxygen, calcium and pH **imaging** inside live cells)
IT 25322-68-3, Polyethylene glycol
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(in sol-gel PEBBLE; production, characterization and applications of PEBBLE nanooptrodes containing entrapped fluorescent probes for potassium, oxygen, calcium and pH **imaging** inside live cells)
IT 36309-88-3
RL: ARG (Analytical reagent use); DEV (Device component use); ANST
(Analytical study); USES (Uses)
(indicator **dye** in sol-gel PEBBLE; production, characterization

and applications of PEBBLE nanooptrodes containing entrapped fluorescent

probes for potassium, oxygen, calcium and pH **imaging** inside live cells)

IT 7440-09-7, Potassium, analysis 7440-70-2, Calcium, analysis 7782-44-7,

Oxygen, analysis

RL: ANT (Analyte); ANST (Analytical study)

(production, characterization and applications of PEBBLE nanooptrodes

containing entrapped fluorescent probes for potassium, oxygen, calcium and

pH **imaging** inside live cells)

IT 78-10-4, Tetraethyl orthosilicate

RL: CAT (Catalyst use); USES (Uses)

(production, characterization and applications of PEBBLE nanooptrodes

containing entrapped fluorescent probes for potassium, oxygen, calcium and

pH **imaging** inside live cells)

L80 ANSWER 7 OF 18 HCAPLUS COPYRIGHT 2004 ACS on STN

2002:707363 Document No. 137:249241 Ink-jet recording inks and their use in

the manufacture of color filters for liquid-crystal display panels.

Hirose, Masashi (Canon Inc., Japan). Jpn. Kokai Tokkyo Koho JP

2002265834

A2 20020918, 19 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP

2001-74329 20010315.

AB The inks with good transparency and adhesion to substrate surface, contain

azo pyridone **dye** of R1N:NR2 (I) type (R1 = Ph groups optionally substituted with halogen, OH, CN, NO2, amino, phosphonyl, sulfonyl, sulfamido group, etc.; R2 = 6-hydroxypyridon-5-yl group optionally substituted with alkyl, COOH, CF3 group on position 4, with CN,

carbamoyl,

sulfonyl, methylsulfonyl group or their salt on position 3 and with

alkyl,

polysulfonated group or their salt), xanthene-type **dyes** and

water-soluble organic solvents. The inks are used as a red ink of multiple

color inks in the printing of a transparent color filter substrate bearing

an ink receiving layer. Thus, a red ink was prepared from I (R1 = 3-NaO3SC6H4; R2 = 1-butyl-3-carbamoyl-4-methyl-6-hydroxypyridon-5-yl group) 3, C.I. Acid Red 52 (xanthene-type pigment) 3, ethylene glycol monobutyl ether 39, EtOH 6 and water 49%.

IT 460352-22-1D, sodium salt

RL: TEM (Technical or engineered material use); USES (Uses)
(pigment; ink-jet recording inks and use in manufacture of color
filters for

liquid-crystal display panels)

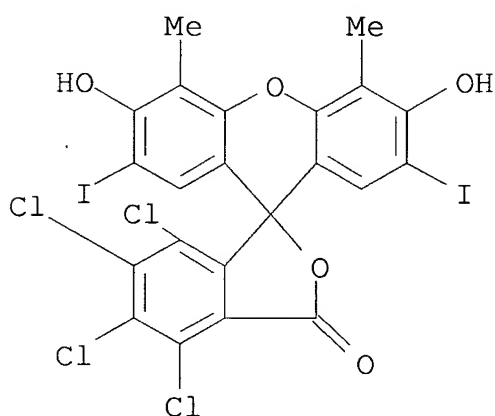
RN 460352-22-1 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one,
4,5,6,7-tetrachloro-3',6'-

dihydroxy-2',7'-diiodo-4',5'-dimethyl-, monosodium salt (9CI) (CA

INDEX

NAME)



● Na

IC ICM C09D011-00

ICS B41J002-01; C09B067-22; C09B067-46; G02B005-20; G02F001-1335;
C09B011-28; C09B029-42

CC 42-12 (Coatings, Inks, and Related Products)

Section cross-reference(s): 74, 76

ST **optical** color filter LCD manuf ink jet ink pigment; xanthene
azopyridone red pigment color filter manuf jet ink

IT Azo **dyes**

Ink-jet printing

Liquid crystal displays

Optical filters

(ink-jet recording inks and use in manufacture of color filters for
liquid-crystal display panels)

IT **Dyes**

(xanthene; ink-jet recording inks and use in manufacture of color

filters

for liquid-crystal display panels)

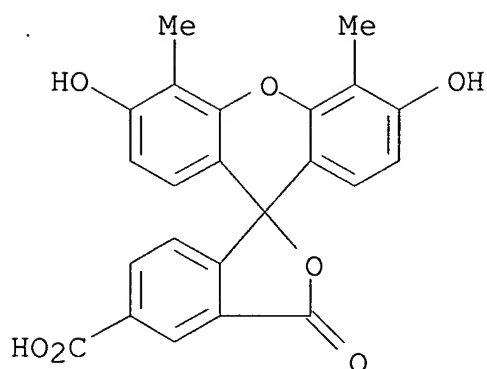
IT 3520-42-1, C.I.Acid Red 52 12220-28-9, C.I.Acid Red 289
366806-34-0
366806-35-1 366806-36-2 366806-37-3 366806-38-4 460352-22-1D
, sodium salt
RL: TEM (Technical or engineered material use); USES (Uses)
(pigment; ink-jet recording inks and use in manufacture of color
filters for
liquid-crystal display panels)

L80 ANSWER 8 OF 18 HCAPLUS COPYRIGHT 2004 ACS on STN
2000:67416 Document No. 132:87481 Aerosol-generated sol-gel derived thin
films and applications thereof. Bright, Frank V.; Colon, Luis A.;
Jordan,
Jeffrey D.; Dunbar, Richard A. (Research Foundation of Suny At
Buffalo,
USA). U.S. US 6016689 A 20000125, 22 pp. (English). CODEN: USXXAM.
APPLICATION: US 1996-752460 19961118.

AB A sensor having a substrate overlayed with a sol-gel layer, a chemical
sensing species deposited upon the sol-gel layer, and a thin film of
a 2nd
sol-gel layer overlaying and entrapping the species. The effect of
this
sensor is that the species exhibits a significant portion of its
intrinsic
function over a period of time. In yet another embodiment of the
subject
invention, a method is disclosed to form a thin sol-gel layer upon an
ambient substrate. This method ensures the integrity, stability and
functionality of the chemical sensing species within the sol-gel
layers.

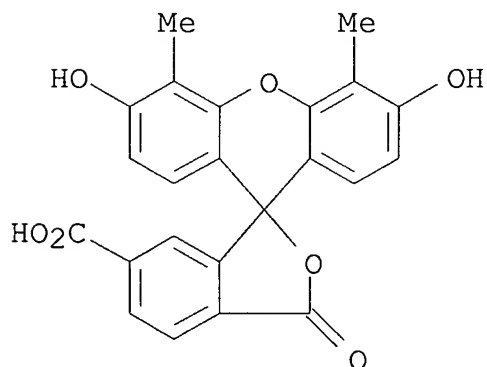
IT 100111-02-2, 5-Carboxy-4',5'-dimethylfluorescein
100111-03-3, 6-Carboxy-4',5'-dimethylfluorescein
RL: ANT (Analyte); ANST (Analytical study)
(carboxy di-Me fluorescein determination in solution **optical** sensor
based on fluorescence using sol-gel immobilized antibody as sensing
element)

RN 100111-02-2 HCAPLUS
CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthene]-5-carboxylic acid,
3',6'-dihydroxy-4',5'-dimethyl-3-oxo- (9CI) (CA INDEX NAME)



RN 100111-03-3 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthene]-6-carboxylic acid,
3',6'-dihydroxy-4',5'-dimethyl-3-oxo- (9CI) (CA INDEX NAME)



IC ICM G01N007-00

NCL 073031050

CC 80-2 (Organic Analytical Chemistry)

Section cross-reference(s): 9

IT Immobilization, biochemical

(antibody; carboxy di-Me fluorescein determination in solution

optical

sensor based on fluorescence using sol-gel immobilized antibody as sensing element)

IT Fluorescence

Optical sensors

(carboxy di-Me fluorescein determination in solution **optical** sensor based on fluorescence using sol-gel immobilized antibody as sensing element)

IT Antibodies

RL: ARG (Analytical reagent use); DEV (Device component use); ANST

(Analytical study); USES (Uses)

optical (immobilized; carboxy di-Me fluorescein determination in solution sensor based on fluorescence using sol-gel immobilized antibody as sensing element)

IT 100111-02-2, 5-Carboxy-4',5'-dimethylfluorescein

100111-03-3, 6-Carboxy-4',5'-dimethylfluorescein

RL: ANT (Analyte); ANST (Analytical study)

(carboxy di-Me fluorescein determination in solution **optical** sensor based on fluorescence using sol-gel immobilized antibody as sensing element) .

L80 ANSWER 9 OF 18 HCAPLUS COPYRIGHT 2004 ACS on STN

1999:624082 Document No. 132:32735 **Optical** Nanosensors for Chemical Analysis inside Single Living Cells. 2. Sensors for pH and Calcium and the Intracellular Application of PEBBLE Sensors. Clark, Heather A.; Kopelman, Raoul; Tjalkens, Ron; Philbert, Martin A. (Department of Chemistry and Department of Environmental Health Sciences, University of Michigan, Ann Arbor, MI, 48109-1055, USA). Analytical Chemistry, 71(21), 4837-4843 (English) 1999. CODEN: ANCHAM. ISSN: 0003-2700. Publisher: American Chemical Society.

AB **Optical** nanosensors, or PEBBLEs (probes encapsulated by biol. localized embedding), have been produced for intracellular measurements of

pH and calcium. Five varieties of pH-sensitive sensors and three different calcium-selective sensors are presented and discussed. Each sensor combines an ion-selective fluorescent indicator and an ion-insensitive internal standard entrapped within an acrylamide polymeric

matrix. Calibrations and linear ranges are presented for each sensor. The photobleaching of **dyes** incorporated into PEBBLEs is comparable to that of the resp. free **dye** that is incorporated within the matrix. These PEBBLE sensors are fully reversible over

many measurements. The leaching of fluorescent indicator from the polymer is

less than 50% over a 48-h period (note that a typical application time is

only a few hours). The PEBBLE sensors have also been applied to intracellular anal. of the calcium flux in the cytoplasm of neural cells

during the mitochondrial permeability transition. Specifically, a distinct

difference is noted between cells of different types (astrocyte vs neuron-derived cells) with respect to their response to the toxicant m-dinitrobenzene (DNB). Use of PEBBLE sensors permits the quant. discrimination of subtle differences between the ability of human SY5Y

neuroblastoma and C6 glioma to respond to challenge with DNB.
Specifically, measurement of intracellular calcium, the precursor to
cell

death, has been achieved.

IT 103991-76-0

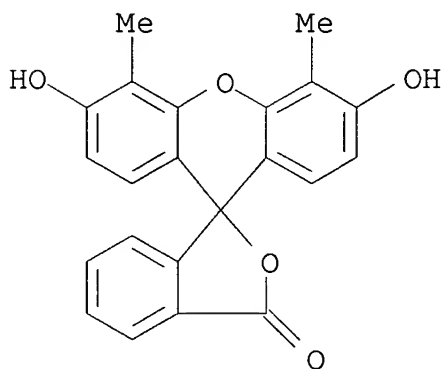
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(**optical** nanosensors for chemical anal. inside single living
cells and sensors for pH and calcium and the intracellular

application

of PEBBLE sensors)

RN 103991-76-0 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthene]-ar-carboxylic acid,
3',6'-dihydroxy-4',5'-dimethyl-3-oxo- (9CI) (CA INDEX NAME)



D1-CO₂H

CC 9-1 (Biochemical Methods)

ST **optical** PEBBLE sensor cell pH calcium

IT Neuroglia

(glioma; **optical** nanosensors for chemical anal. inside single
living cells and sensors for pH and calcium and the intracellular
application of PEBBLE sensors)

IT Nerve, neoplasm

(neuroblastoma; **optical** nanosensors for chemical anal. inside
single living cells and sensors for pH and calcium and the
intracellular application of PEBBLE sensors)

IT Biosensors

Cell

Cytoplasm

Fluorescent **dyes**

pH

(**optical** nanosensors for chemical anal. inside single living

cells and sensors for pH and calcium and the intracellular application

of PEBBLE sensors)

IT Polymers, uses

RL: DEV (Device component use); USES (Uses)

(**optical** nanosensors for chemical anal. inside single living cells and sensors for pH and calcium and the intracellular

application

of PEBBLE sensors)

IT 99-65-0, m-Dinitrobenzene

RL: ADV (Adverse effect, including toxicity); BIOL (Biological study)

(**optical** nanosensors for chemical anal. inside single living cells, and sensors for pH and calcium and the intracellular

application

of PEBBLE sensors)

IT 7440-70-2, Calcium, analysis

RL: ANT (Analyte); ANST (Analytical study)

(**optical** nanosensors for chemical anal. inside single living cells and sensors for pH and calcium and the intracellular

application

of PEBBLE sensors)

IT 60311-02-6, Sulforhodamine 101 103991-76-0 128724-35-6

131071-60-8, SNAFL-1 138067-55-7, Calcium green 138067-56-8,

Calcium

orange 153130-66-6, Calcium green 5N 155898-75-2 252321-13-4

RL: ARU (Analytical role, unclassified); ANST (Analytical study)

(**optical** nanosensors for chemical anal. inside single living cells and sensors for pH and calcium and the intracellular

application

of PEBBLE sensors)

L80 ANSWER 10 OF 18 HCAPLUS COPYRIGHT 2004 ACS on STN

1997:424380 Document No. 127:146558 Photon-counting **optical**-fiber sensor for the detection of ammonia in neurochemical applications.

Elamari, A.; Gisin, N.; Munoz, J. L.; Poitry, S.; Tsacopoulos, M.;

Zbinden, H. (University of Geneva, Group of Applied Physics, 20,

ecole de

Medecine CH-1211, Geneva, 4, Switz.). Sensors and Actuators, B:

Chemical,

B38(1-3), 183-188 (English) 1997. CODEN: SABCEB. ISSN: 0925-4005.

Publisher: Elsevier.

AB We report our progress in developing a miniaturized version of an

optical-fiber sensor for the measurement of ammonia. The

principle of the measurement is based on the combination of photon

counting and fluorescence from a pH indicator. This sensor has been

developed to monitor the release of ammonia by photoreceptors of the

honeybee drone retina under stimulation by light or by a chemical It

has a

dynamic of 25 dB and a detection limit of 30 nM. Sensors for other chems.

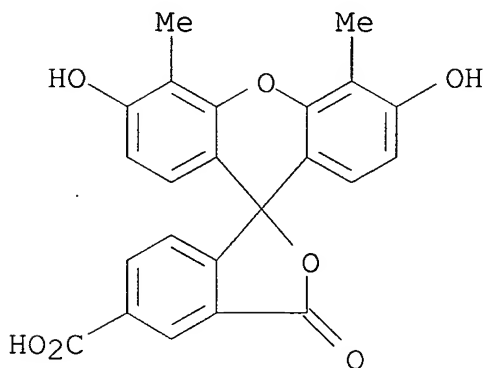
could be constructed on the same principle, by simply changing the indicator used.

IT 100111-02-2

RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(photon-counting **optical**-fiber sensor for ammonia detection in neurochem. studies)

RN 100111-02-2 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthene]-5-carboxylic acid,
3',6'-dihydroxy-4',5'-dimethyl-3-oxo- (9CI) (CA INDEX NAME)



CC 9-1 (Biochemical Methods)

Section cross-reference(s): 13, 73, 79

ST ammonia detection **optical** fiber sensor; photon counting fiber
optic sensor ammonia; honeybee photoreceptor ammonia release
detection

IT **Optical** detectors

(fluorescence; photon-counting **optical**-fiber sensor for
ammonia detection in neurochem. studies)

IT Honeybee

(photon-counting **optical**-fiber sensor for ammonia detection
in neurochem. studies)

IT Fiber **optic** sensors

(photon-counting; photon-counting **optical**-fiber sensor for
ammonia detection in neurochem. studies)

IT Eye

Eye

(photoreceptor; photon-counting **optical**-fiber sensor for
ammonia detection in neurochem. studies)

IT 7664-41-7, Ammonia, analysis 14798-03-9, Ammonium, analysis

RL: ANT (Analyte); ANST (Analytical study)

(photon-counting **optical**-fiber sensor for ammonia detection
in neurochem. studies)

IT 100111-02-2

RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(photon-counting **optical**-fiber sensor for ammonia detection
in neurochem. studies)

L80 ANSWER 11 OF 18 HCAPLUS COPYRIGHT 2004 ACS on STN

1996:42936 Document No. 124:163654 **Optical** sensor system for
determining pH values and ionic strengths. Alder, Alex; Barnard,
Steven;

Berger, Joseph; Blom, Nils; Rouilly, Marizel (Ciba-Geigy A.-G.,
Switz.).

PCT Int. Appl. WO 9530148 A1 19951109, 50 pp. DESIGNATED STATES: W:

AM,
AU, BB, BG, BR, BY, CA, CN, CZ, EE, FI, GE, HU, IS, JP, KG, KP, KR,
KZ,
LK, LR, LT, LV, MD, MG, MN, MX, NO, NZ, PL, RO, RU, SG, SI, SK, TJ,
TM,
TT, UA, US, UZ, VN; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, DE, DK,
ES,
FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG.
(English). CODEN: PIXXD2. APPLICATION: WO 1995-IB302 19950427.
PRIORITY: CH 1994-1360 19940502.

AB A method for the independent, reversible, **optical** determination of pH
value and the ionic strength of an aqueous sample with the aid of two
different

sensors in accordance with the fluorescence method, in which method
two

optical sensors, which are each composed of polymers of different
structure but each contains the same fluorescent **dye** and which
each consists of a coated material composed of (a) a carrier
material, to

which there applied (b) at least one water-insol. layer of a polymer
comprising at least one hydrophilic monomer (A) from the group of
substituted olefins, and (c) a proton-sensitive fluorescent **dye**
which is bonded directly or via a bridge group to the spine of

polymer (b)

or which is incorporated in polymer (b), are brought into contact
with an

aqueous test sample, irradiated with exciting light, the fluorescence
is

measured and the pH values and the ionic strengths are calculated
from the

measured fluorescence intensities with reference to calibration
curves.

IT 172530-91-5P

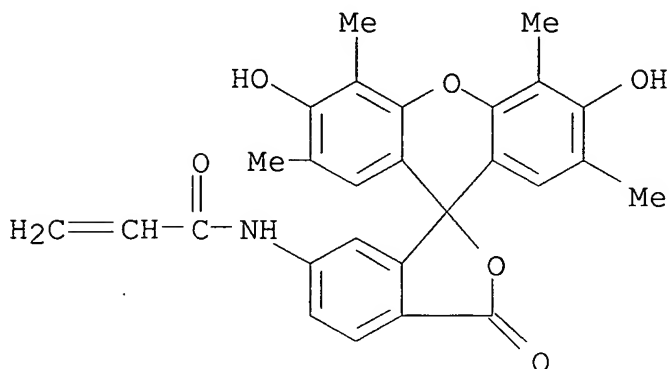
RL: SPN (Synthetic preparation); PREP (Preparation)

(a NH-**optical** sensor system for determining pH values and ionic
strengths of aqueous samples based on two sensors containing
polymers with

different structures and same fluorescent dye)

RN 172530-91-5 HCAPLUS

CN 2-Propenamide, N-(3',6'-dihydroxy-2',4',5',7'-tetramethyl-3-oxospiro[isobenzofuran-1(3H),9'-[9H]xanthen]-6-yl)- (9CI) (CA INDEX NAME)



IT 172531-31-6P 172531-32-7P 172923-56-7P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);

RACT

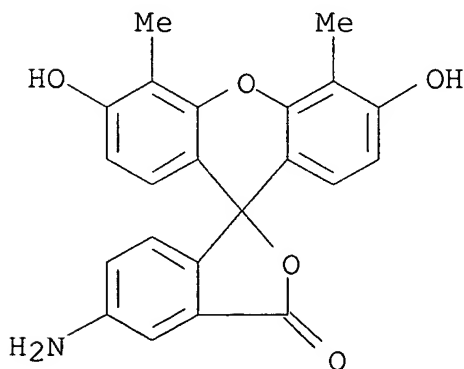
(Reactant or reagent)

(optical sensor system for determining pH values and ionic strengths of aqueous samples based on two sensors containing polymers with

different structures and same fluorescent dye)

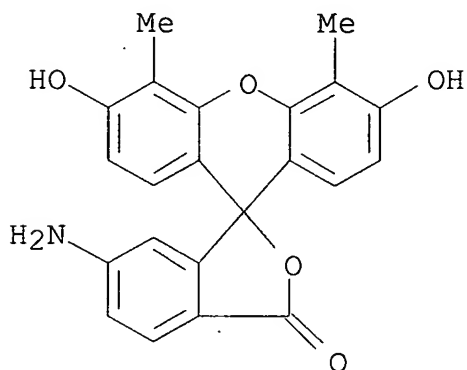
RN 172531-31-6 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one, 5-amino-3',6'-dihydroxy-4',5'-dimethyl- (9CI) (CA INDEX NAME)



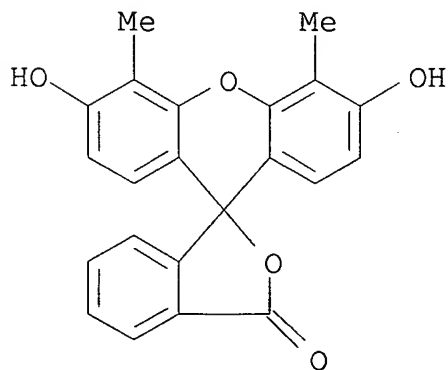
RN 172531-32-7 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one,
6-amino-3',6'-dihydroxy-
4',5'-dimethyl- (9CI) (CA INDEX NAME)



RN 172923-56-7 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one,
3',6'-dihydroxy-4',5'-
dimethyl-5(or 6)-nitro- (9CI) (CA INDEX NAME)



D1-NO2

IT 172530-82-4P 172530-83-5P 172530-84-6P
172530-85-7P 172530-86-8P 172530-87-9P
172530-88-0P 172530-89-1P 172530-90-4P
172530-92-6P

RL: SPN (Synthetic preparation); PREP (Preparation)

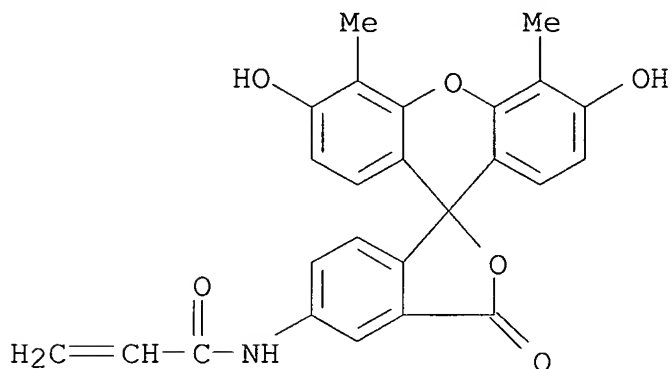
(optical sensor system for determining pH values and ionic
strengths of aqueous samples based on two sensors containing
polymers with

different structures and same fluorescent dye)

RN 172530-82-4 HCAPLUS

CN 2-Propenamide,

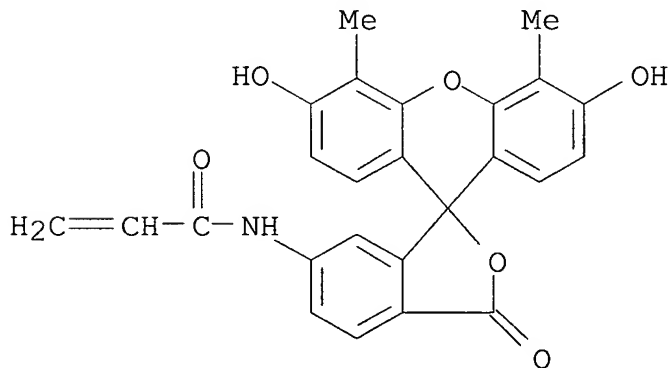
N-(3',6'-dihydroxy-4',5'-dimethyl-3-oxospiro[isobenzofuran-1(3H),9'-[9H]xanthen]-5-yl)- (9CI) (CA INDEX NAME)



RN 172530-83-5 HCAPLUS

CN 2-Propenamide,

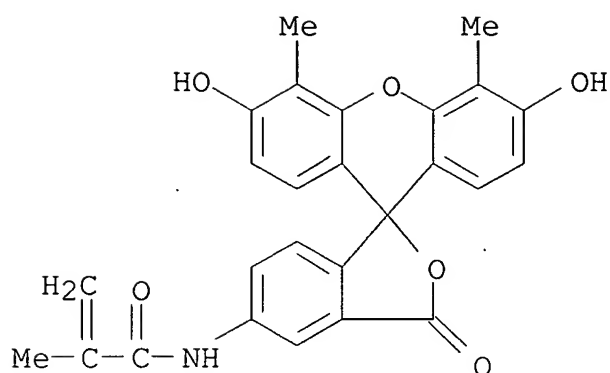
N-(3',6'-dihydroxy-4',5'-dimethyl-3-oxospiro[isobenzofuran-1(3H),9'-[9H]xanthen]-6-yl)- (9CI) (CA INDEX NAME)



RN 172530-84-6 HCAPLUS

CN 2-Propenamide,

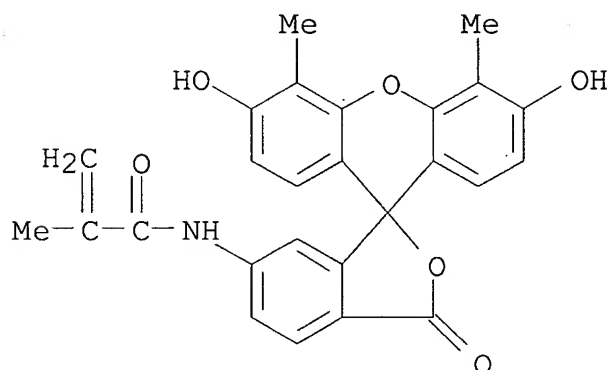
N-(3',6'-dihydroxy-4',5'-dimethyl-3-oxospiro[isobenzofuran-1(3H),9'-[9H]xanthen]-5-yl)-2-methyl- (9CI) (CA INDEX NAME)



RN 172530-85-7 HCAPLUS

CN 2-Propenamide,

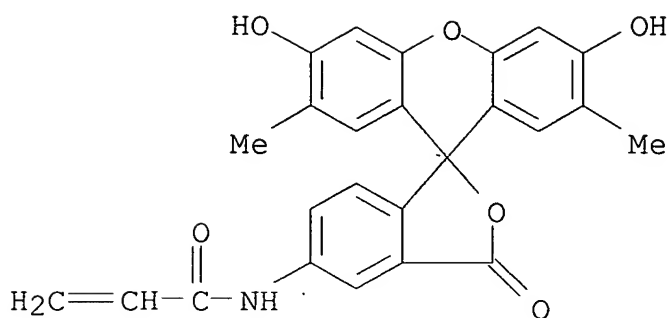
N-(3',6'-dihydroxy-4',5'-dimethyl-3-oxospiro[isobenzofuran-1(3H),9'-[9H]xanthen]-6-yl)-2-methyl- (9CI) (CA INDEX NAME)



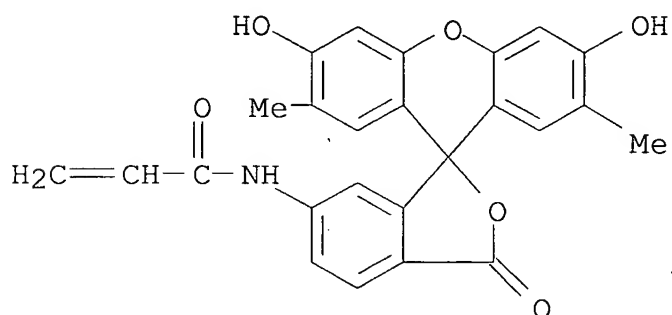
RN 172530-86-8 HCAPLUS

CN 2-Propenamide,

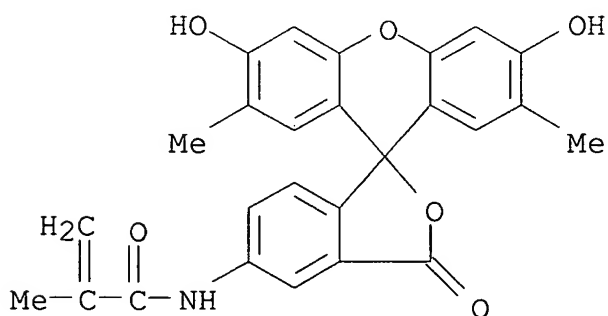
N-(3',6'-dihydroxy-2',7'-dimethyl-3-oxospiro[isobenzofuran-1(3H),9'-[9H]xanthen]-5-yl)- (9CI) (CA INDEX NAME)



RN 172530-87-9 HCAPLUS
CN 2-Propenamide,
N-(3',6'-dihydroxy-2',7'-dimethyl-3-oxospiro[isobenzofuran-
1(3H),9'-[9H]xanthen]-6-yl)- (9CI) (CA INDEX NAME)

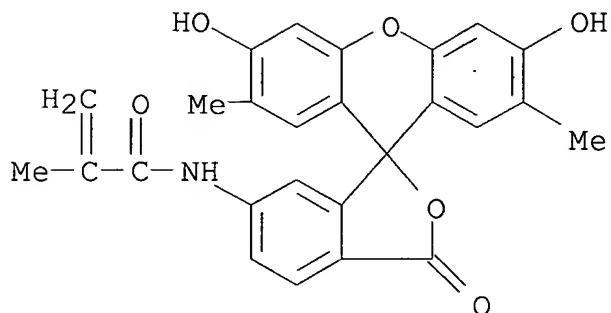


RN 172530-88-0 HCAPLUS
CN 2-Propenamide,
N-(3',6'-dihydroxy-2',7'-dimethyl-3-oxospiro[isobenzofuran-
1(3H),9'-[9H]xanthen]-5-yl)-2-methyl- (9CI) (CA INDEX NAME)



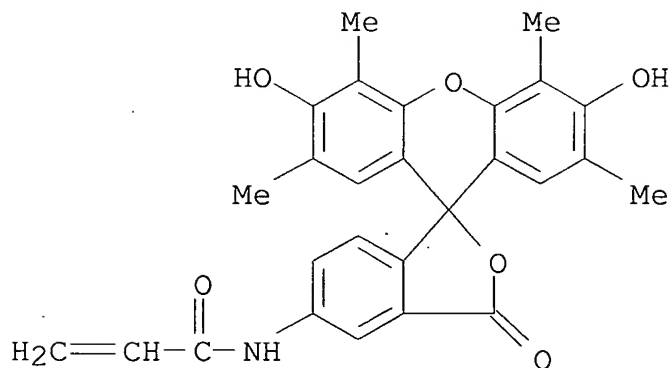
RN 172530-89-1 HCAPLUS
CN 2-Propenamide,
N-(3',6'-dihydroxy-2',7'-dimethyl-3-oxospiro[isobenzofuran-

1(3H),9'-[9H]xanthen]-6-yl)-2-methyl- (9CI) (CA INDEX NAME)



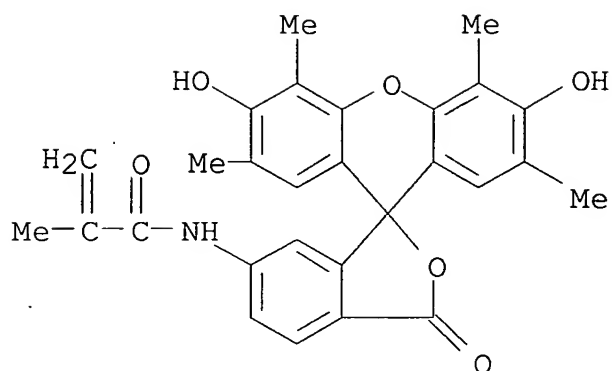
RN 172530-90-4 HCAPLUS

CN 2-Propenamide, N-(3',6'-dihydroxy-2',4',5',7'-tetramethyl-3-oxospiro[isobenzofuran-1(3H),9'-[9H]xanthen]-5-yl)- (9CI) (CA INDEX NAME)



RN 172530-92-6 HCAPLUS

CN 2-Propenamide, N-(3',6'-dihydroxy-2',4',5',7'-tetramethyl-3-oxospiro[isobenzofuran-1(3H),9'-[9H]xanthen]-6-yl)-2-methyl- (9CI)
(CA INDEX NAME)



IC ICM G01N031-22
ICS C08F220-54; C08F220-58; C07D311-80
CC 79-2 (Inorganic Analytical Chemistry)
Section cross-reference(s): 38, 61
ST pH ionic strength detn **optical** sensor
IT Ionic strength
pH
(**optical** sensor system for determining pH values and ionic
strengths of aqueous samples based on two sensors containing
polymers with
different structures and same fluorescent **dye**)
IT **Dyes**
(fluorescent, **optical** sensor system for determining pH values and
ionic strengths of aqueous samples based on two sensors containing
polymers
with different structures and same fluorescent **dye**)
IT **Sensors**
(**optical**, **optical** sensor system for determining pH values
and ionic strengths of aqueous samples based on two sensors
containing polymers
with different structures and same fluorescent **dye**)
IT **Alkenes, analysis**
RL: ARU (Analytical role, unclassified); DEV (Device component use);
ANST
(Analytical study); USES (Uses)
(polymers, **optical** sensor system for determining pH values and
ionic strengths of aqueous samples based on two sensors containing
polymers
with different structures and same fluorescent **dye**)
IT **172530-91-5P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(a NH-**optical** sensor system for determining pH values and ionic
strengths of aqueous samples based on two sensors containing
polymers with

different structures and same fluorescent dye)
IT 7732-18-5, Water, analysis
RL: AMX (Analytical matrix); ANST (Analytical study)
(optical sensor system for determining pH values and ionic
strengths of aqueous samples based on two sensors containing
polymers with
different structures and same fluorescent dye)
IT 110-26-9 868-77-9 7727-54-0 25249-16-5
RL: ARU (Analytical role, unclassified); DEV (Device component use);
ANST
(Analytical study); USES (Uses)
(optical sensor system for determining pH values and ionic
strengths of aqueous samples based on two sensors containing
polymers with
different structures and same fluorescent dye)
IT 53413-37-9P 172531-40-7P
RL: ARU (Analytical role, unclassified); DEV (Device component use);
SPN
(Synthetic preparation); ANST (Analytical study); PREP (Preparation);
USES
(Uses)
(optical sensor system for determining pH values and ionic
strengths of aqueous samples based on two sensors containing
polymers with
different structures and same fluorescent dye)
IT 121-44-8, reactions 530-62-1 608-25-3, 2-Methylresorcinol
693-57-2,
12-Aminododecanoic acid 814-68-6, Acryloyl chloride 2420-94-2,
2-Aminoethyl methacrylate hydrochloride 3326-34-9 5197-62-6
5292-43-3 5466-84-2, 4-Nitrophthalic acid anhydride 20734-58-1,
1,8-Bis(dimethylamino)naphthalene 51649-83-3
RL: RCT (Reactant); RACT (Reactant or reagent)
(optical sensor system for determining pH values and ionic
strengths of aqueous samples based on two sensors containing
polymers with
different structures and same fluorescent dye)
IT 172531-31-6P 172531-32-7P 172531-34-9P
172923-56-7P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);
RACT
(Reactant or reagent)
(optical sensor system for determining pH values and ionic
strengths of aqueous samples based on two sensors containing
polymers with
different structures and same fluorescent dye)
IT 45235-77-6P 53413-38-0P 72415-47-5P 86520-52-7P 105502-82-7P
172530-81-3P 172530-82-4P 172530-83-5P
172530-84-6P 172530-85-7P 172530-86-8P

172530-87-9P 172530-88-0P 172530-89-1P
172530-90-4P 172530-92-6P 172530-93-7P 172530-94-8P
172530-95-9P 172530-96-0P 172530-97-1P 172530-98-2P
172530-99-3P
172531-00-9P 172531-01-0P 172531-02-1P 172531-03-2P
172531-04-3P
172531-05-4P 172531-06-5P 172531-07-6P 172531-08-7P
172531-09-8P
172531-10-1P 172531-11-2P 172531-12-3P 172531-13-4P
172531-14-5P
172531-15-6P 172531-16-7P 172531-17-8P 172531-18-9P
172531-19-0P
172531-20-3P 172531-21-4P 172531-22-5P 172531-23-6P
172531-24-7P
172531-25-8P 172531-26-9P 172531-27-0P 172531-28-1P
172531-29-2P
172531-30-5P 172531-33-8P 172531-35-0P 172531-36-1P
172531-37-2P
172531-38-3P 172531-39-4P 173295-12-0P

RL: SPN (Synthetic preparation); PREP (Preparation)

(**optical** sensor system for determining pH values and ionic strengths of aqueous samples based on two sensors containing polymers with

different structures and same fluorescent **dye**)

IT 2530-85-0

RL: RCT (Reactant); RACT (Reactant or reagent)

(silanizing agent; **optical** sensor system for determining pH values and ionic strengths of aqueous samples based on two sensors containing polymers

with different structures and same fluorescent **dye**)

L80 ANSWER 12 OF 18 HCAPLUS COPYRIGHT 2004 ACS on STN

1995:975800 Document No. 124:134032 General model for the steady-state response properties of fiber-**optic** ammonia gas sensors. Li,

Lin; Arnold, Mark A. (Department of Chemistry, University of Iowa, Iowa

City, IA, 52242, USA). Analytica Chimica Acta, 317(1-3), 265-73 (English)

1995. CODEN: ACACAM. ISSN: 0003-2670. Publisher: Elsevier.

AB A math. model is derived to describe the steady-state response properties

of the fiber-**optic** ammonia sensor. Unlike the authors' previous model, the present model permits any concentration of total ammonia nitrogen

initially present in the internal solution of the sensor. A cubic equation

is solved to give the magnitude of the nonprotonated form of the indicator

dye under equilibrium conditions. For the 1st time, the effect of the initial ammonia nitrogen concentration in the internal solution is evaluated. The

response equation is differentiated with respect to the sample ammonia concentration to give an expression that can be used to evaluate the effects of

critical exptl. parameters on the measurement sensitivity. This model is

verified by comparing predicted and actual responses for several different

fiber-optic sensor configurations. The model was used to generate surface maps that allow evaluation of the interrelationships between key exptl. parameters such as the indicator concentration, sample ammonia

concentration, internal ammonium chloride concentration and indicator acid dissociation

constant Results of this anal. indicate that optimal responses and maximal

sensitivity require careful selection of values for these parameters.

IT 100111-02-2, 5-Carboxy-4',5'-dimethylfluorescein

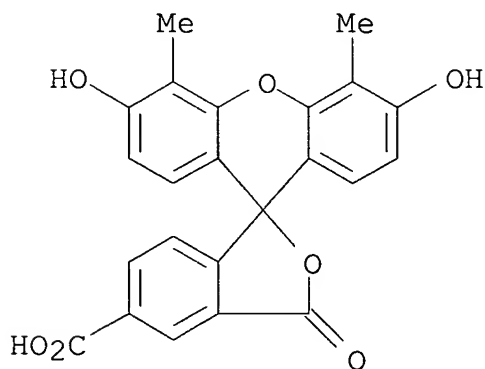
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(as indicator for ammonia determination using fiber-optic ammonia

gas

sensors)

RN 100111-02-2 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthene]-5-carboxylic acid,
3',6'-dihydroxy-4',5'-dimethyl-3-oxo- (9CI) (CA INDEX NAME)



CC 79-1 (Inorganic Analytical Chemistry)

ST modeling fiber optic ammonia gas sensor

IT Simulation and Modeling, physicochemical

(general model for steady-state response properties of fiber-optic ammonia gas sensors)

IT Sensors

(gas, fiber-optic, general model for steady-state response properties of fiber-optic ammonia gas sensors)

IT 100111-02-2, 5-Carboxy-4',5'-dimethylfluorescein
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(as indicator for ammonia determination using fiber-optic ammonia gas sensors)

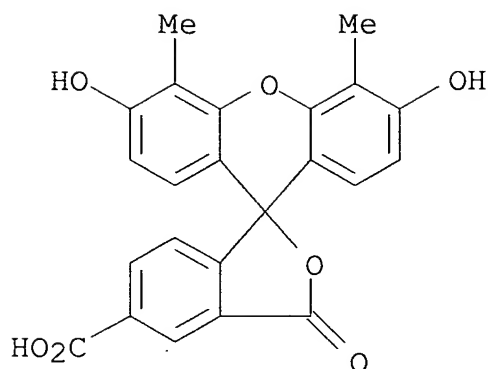
IT 7664-41-7, Ammonia, analysis
RL: ANT (Analyte); ANST (Analytical study)
(general model for steady-state response properties of fiber-optic ammonia gas sensors)

L80 ANSWER 13 OF 18 HCAPLUS COPYRIGHT 2004 ACS on STN
1995:594425 Document No. 123:73757 Sensor with improved drift stability.
Bentsen, James G.; Wood, Kenneth B. (Minnesota Mining and Manufacturing Co., USA). U.S. US 5403746 A 19950404, 44 pp. (English). CODEN: USXXAM. APPLICATION: US 1993-160687 19931130.

AB The present invention provides an optical fluorescence based sensor for measuring the concentration of a gas (e.g., CO2 or ammonia) in a medium such as blood which has improved drift stability. In a preferred embodiment, the sensors of the present invention comprise microcompartments of an aqueous phase having a pH sensitive sensing component within a hydrophobic barrier phase. The sensors of the present invention are substantially free of partitioning species other than the analyte of interest which can migrate from one phase to the other in response to a change in pH in the aqueous phase and which substantially affect the concentration dependent signal. In an alternative embodiment, the sensors of the present invention are constructed so as to retard the migration of partitioning species, thus reducing the initial rate of drift.

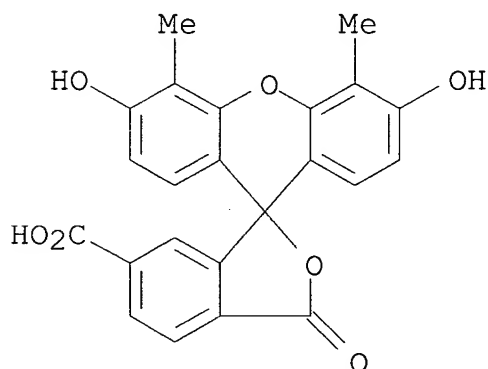
IT 100111-02-2, 5-Carboxy-4',5'-dimethylfluorescein
100111-03-3, 6-Carboxy-4',5'-dimethylfluorescein
RL: ARU (Analytical role, unclassified); DEV (Device component use); ANST (Analytical study); USES (Uses)
(pH sensitive indicator component of sensor with improved drift stability)

RN 100111-02-2 HCAPLUS
CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthene]-5-carboxylic acid, 3',6'-dihydroxy-4',5'-dimethyl-3-oxo- (9CI) (CA INDEX NAME)



RN 100111-03-3 HCAPLUS

CN Spiro[isobenzofuran-1(3H), 9'-[9H]xanthene]-6-carboxylic acid,
3',6'-dihydroxy-4',5'-dimethyl-3-oxo- (9CI) (CA INDEX NAME)



IC ICM G01N033-50

ICS G01N031-00

NCL 436068000

CC 79-6 (Inorganic Analytical Chemistry)

Section cross-reference(s): 9

IT Blood analysis

(carbon dioxide and ammonia determination in blood by **optical**
fluorescence sensor with improved drift stability)

IT Sensors

(fluorometric; carbon dioxide and ammonia determination in blood by
optical fluorescence sensor with improved drift stability)

IT 7664-41-7, Ammonia, analysis

RL: ANT (Analyte); ANST (Analytical study)

(ammonia determination in blood by **optical** fluorescence sensor with
improved drift stability)

IT 124-38-9, Carbon dioxide, analysis

RL: ANT (Analyte); ANST (Analytical study)

(carbon dioxide determination in blood by **optical** fluorescence sensor

with improved drift stability)

IT 90-33-5, β -Methylumbelliferone 93-35-6, 7-Hydroxycoumarin
596-09-8, Fluorescein diacetate 3301-79-9, 6-Carboxyfluorescein
3348-03-6, 6-Carboxyfluorescein diacetate 3548-09-2,
9-Amino-6-chloro-2-methoxyacridine 4733-50-0, 3,6-
Dihydroxyphthalonitrile 6358-69-6, 8-Hydroxypyrene-1,3,6-trisulfonic
acid trisodium salt 9000-07-1, Carrageenan 9000-30-0, Guar gum
9002-89-5, Polyvinyl alcohol 9003-01-4, Poly(acrylic acid)
9003-05-8,
Polyacrylamide 9003-09-2, Poly(vinyl methyl ether) 9003-39-8,
Polyvinyl pyrrolidone 9004-32-4, Carboxymethylcellulose 9004-54-0,
Dextran, analysis 9004-62-0, Hydroxyethylcellulose 9004-64-2,
Hydroxypropyl cellulose 9004-65-3, Hydroxypropyl(methylcellulose)
9004-67-5, Methylcellulose 9005-32-7, Alginic acid 9041-56-9,
Hydroxybutyl(methylcellulose) 11138-66-2, Xanthan gum 25322-68-3
25392-41-0, 4-Chloromethyl-7-hydroxycoumarin 26022-14-0,
Poly(hydroxyethylacrylate) 26616-03-5 26793-34-0,
Polydimethylacrylamide 50851-57-5 61419-02-1, Naphthofluorescein
62487-95-0, Poly(hydroxymethylacrylate) 76823-03-5,
5-Carboxyfluorescein
77084-71-0, Naphthofluorescein diacetate 79955-27-4,
5-Carboxyfluorescein diacetate 100111-02-2, 5-Carboxy-4',5'-
dimethylfluorescein 100111-03-3, 6-Carboxy-4',5'-
dimethylfluorescein 100111-04-4, 5-Carboxy-4',5'-dimethylfluorescein
diacetate 100111-05-5, 6-Carboxy-4',5'-dimethylfluorescein diacetate
124412-00-6 126829-34-3,
2',7'-Bis-(2-carboxyethyl)-5-carboxyfluorescein
126854-14-6 131071-60-8, 3,10-Dihydroxyspiro[7H-benzo[c]xanthene-
7,1'(3'H)-isobenzofuran]-3'-one 131071-61-9, 3,10-Dihydroxyspiro[7H-
benzo[c]xanthene-7,1'(3'H)-isobenzofuran]-3'-one diacetate
131071-62-0
131071-68-6, 5'-Carboxy-10-dimethylamino-3-hydroxy-spiro[7H-
benzo[c]xanthene-7,1'(3'H)-isobenzofuran]-3'-one 131071-69-7,
3-Acetoxy-5'-acetoxymethoxycarbonyl-10-dimethylaminospiro[7H-
benzo[c]xanthene-7,1'(3'H)-isobenzofuran]-3'-one 131071-70-0,
5'-Carboxy-3,10-dihydroxy-spiro[7H-benzo[c]xanthene-7,1'(3'H)-
isobenzofuran]-3'-one 131071-71-1,
6'-Carboxy-9-chloro-3,10-dihydroxy-
spiro[7H-benzo[c]xanthene-7,1'(3'H)-isobenzofuran]-3'-one
131071-76-6,
6'-Carboxy-10-ethylamino-3-hydroxy-9-methyl-spiro[7H-benzo[c]xanthene-
7,1'(3'H)-isobenzofuran]-3'-one 131071-80-2,
5'-Carboxy-10-ethylamino-3-
hydroxy-9-methyl-spiro[7H-benzo[c]xanthene-7,1'(3'H)-isobenzofuran]-3'-one

131084-60-1,
6'-Carboxy-3,10-dihydroxy-spiro[7H-benzo[c]xanthene-7,1'(3'H)-
isobenzofuran]-3'-one 131084-61-2 136832-63-8, 5-
Chloromethylfluorescein diacetate 142975-81-3, 5-Carboxy-2',7'-
dichlorofluorescein 144316-86-9, 6-Carboxy-2',7'-dichlorofluorescein
144489-09-8, 5-Carboxy-2',7'-dichlorofluorescein diacetate
144489-10-1,
6-Carboxy-2',7'-dichlorofluorescein diacetate 145103-60-2,
5-Carboxynaphthofluorescein 145103-61-3, 6-Carboxynaphthofluorescein
145694-94-6,
4-[2-Chloro-6-(ethylamino)-7-methyl-3-oxo-3H-xanthen-9-yl]-
1,3-benzenedicarboxylic acid 156178-72-2, 5'-Carboxy-3,10-diacetoxy-
spiro[7H-benzo[c]xanthene-7,1'(3'H)-isobenzofuran]-3'-one
164256-07-9,
5-Carboxynaphthofluorescein diacetate 164256-08-0 164256-09-1
164256-10-4 164256-11-5 164256-12-6,
6'-Carboxy-3,10-diacetoxyspiro[7H-
benzo[c]xanthene-7,1'(3'H)-isobenzofuran]-3'-one 164256-13-7,
5'-Carboxy-9-chloro-3,10-dihydroxy-spiro[7H-benzo[c]xanthene-7,1'(3'H)-
isobenzofuran]-3'-one 164256-14-8,
5'-Carboxy-9-chloro-3,10-diacetoxy-
spiro[7H-benzo[c]xanthene-7,1'(3'H)-isobenzofuran]-3'-one
164256-15-9,
6'-Carboxy-9-chloro-3,10-diacetoxy-spiro[7H-benzo[c]xanthene-7,1'(3'H)-
isobenzofuran]-3'-one 164256-16-0,
6'-Carboxy-10-dimethylamino-3-hydroxy-
spiro[7H-benzo[c]xanthene-7,1'(3'H)-isobenzofuran]-3'-one
164256-17-1,

5'-Carboxy-10-diethylamino-3-hydroxyspiro[7H-benzo[c]xanthene-7,1'(3'H)-
isobenzofuran]-3'-one 164256-18-2 164256-19-3 164256-20-6
164715-05-3 164715-06-4 164715-14-4 164715-15-5 164715-19-9
164715-20-2 164906-46-1 164906-47-2, 2',7'-Bis-(2-carboxyethyl)-6-
carboxyfluorescein acetoxymethyl ester

RL: ARU.(Analytical role, unclassified); DEV (Device component use);

ANST

(Analytical study); USES (Uses)

(pH sensitive indicator component of sensor with improved drift
stability)

L80 ANSWER 14 OF 18 HCAPLUS COPYRIGHT 2004 ACS on STN

1993:419371 Document No. 119:19371 Air-gap fiber-optic ammonia gas
sensor. Kar, Satyajit; Arnold, Mark A. (Dep. Chem., Univ. Iowa, Iowa
City, IA, 52242, USA). Talanta, 40(5), 757-60 (English) 1993. CODEN:
TLNTA2. ISSN: 0039-9140.

AB A novel fiber-optics gas sensing arrangement based on an air-gap

designs is evaluated. In this arrangement, a small gap of air separates the internal solution from the sample. In addition, a second air-gap separates the internal solution from a fiber-optic probe measures the fluorescence of the internal solution. A series of gas sensors for ammonia is used to investigate several critical design parameters. The length of the air-gap between the internal solution and the fiber-optic probe affects the magnitude of response. The length of the air-gap separating the internal and sample solns. has minimal effect on either magnitude or rate of response. As with membrane-type gas sensors, thickness of the internal solution and concentration of the indicator dye are the most important sensor parameters to consider when designing a fiber-optic gas sensor.

IT 100111-02-2, 5-Carboxy-4',5'-dimethylfluorescein

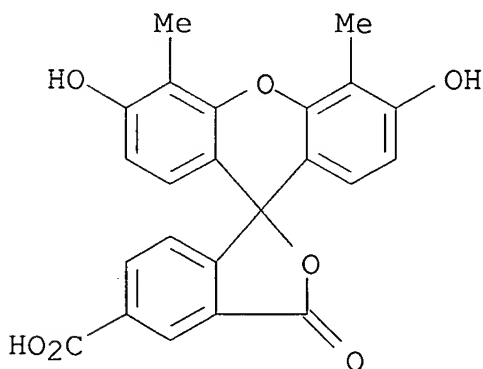
100111-03-3, 6-Carboxy-4',5'-dimethylfluorescein

RL: ANST (Analytical study)

(internal solution containing, in air-gap fiber-optic ammonia gas sensor for anal.)

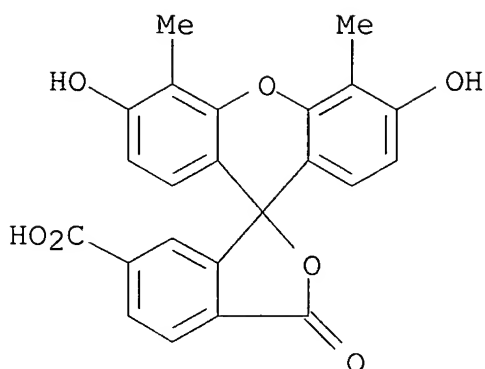
RN 100111-02-2 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthene]-5-carboxylic acid,
3',6'-dihydroxy-4',5'-dimethyl-3-oxo- (9CI) (CA INDEX NAME)



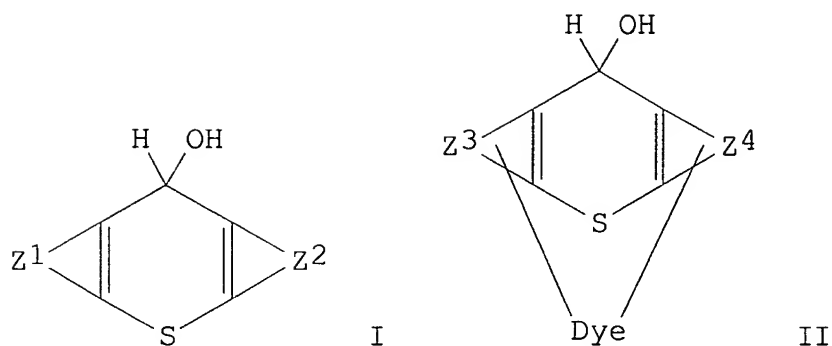
RN 100111-03-3 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthene]-6-carboxylic acid,
3',6'-dihydroxy-4',5'-dimethyl-3-oxo- (9CI) (CA INDEX NAME)



CC 79-2 (Inorganic Analytical Chemistry)
ST air gap fiber **optic** ammonia sensor
IT Sensors
(gas, fiber-**optic**, air-gap, for ammonia determination)
IT 7664-41-7, Ammonia, analysis
RL: ANT (Analyte); ANST (Analytical study)
(determination of, air-gap fiber-**optic** gas sensor for)
IT 3301-79-9, 6-Carboxyfluorescein 12125-02-9, Ammonium chloride,
analysis
76823-03-5, 5-Carboxyfluorescein 100111-02-2,
5-Carboxy-4',5'-dimethylfluorescein 100111-03-3,
6-Carboxy-4',5'-dimethylfluorescein
RL: ANST (Analytical study)
(internal solution containing, in air-gap fiber-**optic** ammonia gas
sensor for anal.)

L80 ANSWER 15 OF 18 HCAPLUS COPYRIGHT 2004 ACS on STN
1993:222928 Document No. 118:222928 Photosensitive composition
containing
thioxanthen-9-ol derivative and its use for formation of ultraviolet
light-cured image for printing plate. Ii, Atsuhiko; Minami, Takahide;
Nakamura, Koichi (Kao Corp., Japan). Jpn. Kokai Tokkyo Koho JP
04107559
A2 19920409 Heisei, 13 pp. (Japanese). CODEN: JKXXAF. APPLICATION:
JP 1990-228800 19900829.
GI



AB A photosensitive composition contains a thioxanthenol derivative [I; Z1, Z2 =

(un)substituted benzene or naphthalene ring], a photosensitive resin having a photodimerizable group, and a photoradical generator sensitive to

the visible light region. Alternatively a photosensitive composition contains

a thioxanthenol derivative [II; Dye = a dye bonded to the Z3 and/or Z4 ring,

reacting with a photoradical generator and generating a radical upon irradiation with a light of its absorption wavelength; Z3, Z4 =

benzene or

naphthalene ring (un)substituted with a group other than Dye], a photosensitive resin having a photodimerizable group, and a

photoradical

generator. A cured image is formed by imagewise irradiation of a visible

light to a photosensitive layer consisting of the above photosensitive composition to form a latent image and irradiation of the entire

surface with a UV

light followed by development. The composition gives very sharp images.

IT 145334-72-1 145334-73-2

RL: USES (Uses)

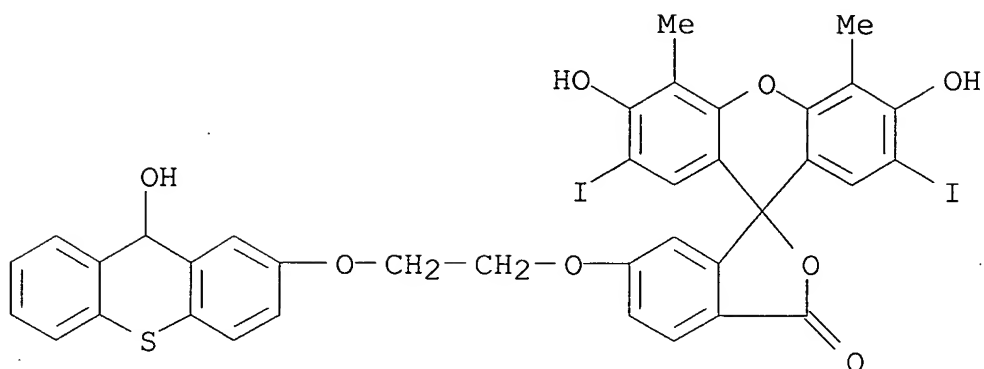
(photosensitive composition containing, for manufacture of printing plate)

RN 145334-72-1 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one,

3',6'-dihydroxy-6-[2-[(9-

hydroxy-9H-thioxanthen-2-yl)oxy]ethoxy]-2',7'-diiodo-4',5'-dimethyl-, disodium salt (9CI) (CA INDEX NAME)

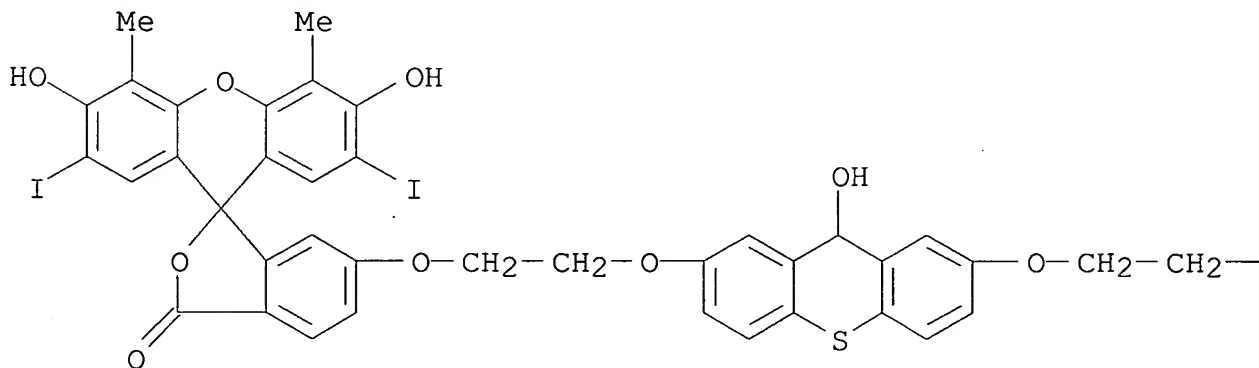


●2 Na

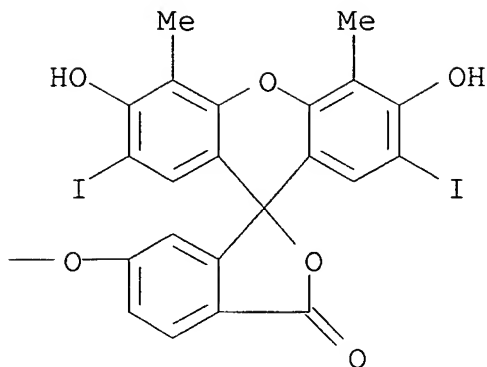
RN 145334-73-2 HCAPLUS'

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one, 6,6''-[(9-hydroxy-9H-thioxanthene-2,7-diyl)bis(oxy-2,1-ethanediyl)oxy]bis[3',6'-dihydroxy-2',7'-diiodo-4',5'-dimethyl-, tetrasodium salt (9CI) (CA INDEX NAME)

PAGE 1-A



●4 Na



IC ICM G03F007-031
ICS G03F007-027; G03F007-029
CC 74-6 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
IT Photoimaging compositions and processes
(containing thioxanthenol derivative, for visible light exposure and UV light-cured imaging)
IT 90-93-7, 4,4'-Bisdiethylaminobenzophenone 90-94-8, Michler's ketone
100-10-7, p-Dimethylaminobenzaldehyde 102-82-9, Tributylamine
103-01-5, N-Phenylglycine 121-69-7, N,N-Dimethylaniline, uses
619-84-1, p-Dimethylaminobenzoic acid 620-40-6, Tribenzylamine
5465-90-7 6783-74-0, Thioxanthen-9-ol 7432-75-9, 12H-Benzo[b]thioxanthen-12-ol 10287-53-3, Ethyl p-dimethylaminobenzoate
14779-78-3, Amyl p-dimethylaminobenzoate 19789-59-4 67362-76-9
135929-39-4 143057-50-5 143057-51-6 143436-29-7 143436-31-1
144092-73-9, 9H-Thioxanthene-1,9-diol 144092-75-1 144092-77-3
144092-78-4 144092-82-0 144092-83-1 144092-84-2 144092-86-4
144092-92-2 144092-95-5 144092-96-6 144092-98-8 144203-59-8
144203-67-8 144203-69-0 144203-71-4 144203-77-0 145334-67-4
145334-69-6 145334-70-9 145334-71-0 145334-72-1
145334-73-2 145361-14-4
RL: USES (Uses)
(photosensitive composition containing, for manufacture of printing plate)

L80 ANSWER 16 OF 18 HCAPLUS COPYRIGHT 2004 ACS on STN
1992:608461 Document No. 117:208461 optical probe and method for monitoring analyte concentration. Sharma, Ashutosh (Iowa State University Research Foundation, Inc., USA). PCT Int. Appl. WO 9212424 A1
19920723, 40 pp. DESIGNATED STATES: W: AU, CA, JP; RW: AT, BE, CH, DE,

DK, ES, FR, GB, GR, IT, LU, NL, SE. (English). CODEN: PIXXD2.
APPLICATION: WO 1991-US4015 19910607. PRIORITY: US 1991-638043

19910104.

AB An **optical** probe for measuring the concentration of an analyte (or partial pressure of a gas) in a sample comprises an indicator matrix containing ≥ 2 different luminescent (fluorescent or phosphorescent) mols., the luminescence of each of which is quenched by the analyte.

Each

of the luminescent mols. has ≥ 1 major band in its absorption spectrum that overlaps with ≥ 1 major band in the absorption spectrum of each of the other luminescent mols., and each of the luminescent mols. has ≥ 1 major band in its emission spectrum that overlaps with ≥ 1 major band in the emission spectrum of each of the other luminescent mols., so that all the luminescent mols. may be coexcited at a common wavelength and the emitted luminescence from

all the

mols. can be monitored at a common wavelength. The coexcitation

results

in improved photostability of the mols., since the excitation energy

is

shared among the mols. The luminescent mols. may be immobilized on a support and/or enclosed in an analyte-permeable membrane. Thus, a

fiber-

optic 0 sensor had at its tip a disk of filter paper impregnated with 2 fluorescent mols., perylene dibutyrate and decacyclene. The

probe,

with excitation at 410 nm and measurement at 510 nm, was highly

sensitive

to minute changes in O concentration

IT 100111-02-2, 5-Carboxy-4',5'-dimethylfluorescein

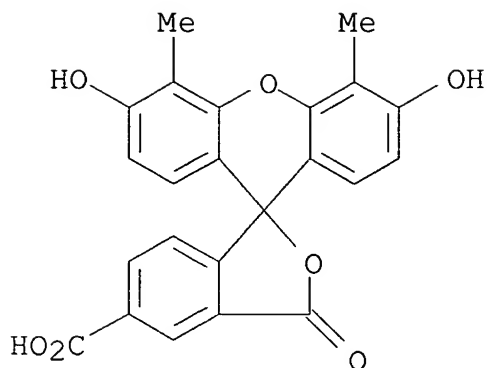
100111-03-3, 6-Carboxy-4',5'-dimethylfluorescein

RL: PROC (Process)

(luminescence quenching of, in pH determination)

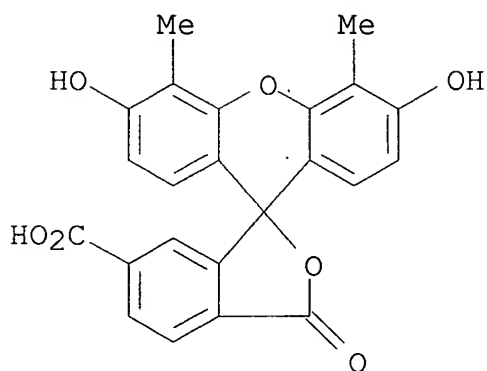
RN 100111-02-2 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthene]-5-carboxylic acid,
3',6'-dihydroxy-4',5'-dimethyl-3-oxo- (9CI) (CA INDEX NAME)



RN 100111-03-3 HCAPLUS

CN Spiro[isobenzofuran-1(3H), 9'-[9H]xanthene]-6-carboxylic acid,
3',6'-dihydroxy-4',5'-dimethyl-3-oxo- (9CI) (CA INDEX NAME)



IC ICM G01N033-00

ICS G01N033-44; G01N021-76

CC 9-5 (Biochemical Methods)

Section cross-reference(s): 80

ST luminescent mol **optical** probe; fluorescent mol fiber
optic probe; oxygen sensor perylene decacyclene

IT **Optical** detectors

(for chemical anal. by luminescence quenching, multiple luminescent
substances in)

IT Fluorescence quenching

Luminescence quenching

Phosphorescence quenching

(in chemical anal., **optical** detector containing multiple

luminescent

substances for)

IT Fluorescent substances

- (in **optical** detector, for chemical anal. by fluorescence quenching)
- IT Luminescent substances
(in **optical** detector, for chemical anal. by luminescence quenching)
- IT Phosphorescent substances
(in **optical** detector, for chemical anal. by phosphorescence quenching)
- IT Gas analysis
(**optical** detector for, by luminescence quenching, multiple luminescent substances in)
- IT **Dyes**
(triphenylmethane, luminescence quenching of, in sulfur dioxide determination)
- IT Unsaturated compounds
RL: ANST (Analytical study)
(conjugated, luminescent, **optical** detector containing, for chemical anal. by luminescence quenching)
- IT **Optical** detectors
(fiber-**optic**, for chemical anal. by luminescence quenching, multiple luminescent substances in)
- IT Porphyrins
RL: ANST (Analytical study)
(metal complexes, luminescent, **optical** detector containing multiple, for chemical anal. by luminescence quenching)
- IT Aromatic hydrocarbons, uses
RL: USES (Uses)
(polycyclic, luminescent, **optical** detector containing, for chemical anal. by luminescence quenching)
- IT 76-54-0, 2',7'-Dichlorofluorescein 2321-07-5, Fluorescein 3301-79-9,
6-Carboxyfluorescein 76823-03-5 100111-02-2,
5-Carboxy-4',5'-dimethylfluorescein 100111-03-3,
6-Carboxy-4',5'-dimethylfluorescein 121535-95-3, 1-Hydroxypyrenetrisulfonic acid 142975-81-3, 5-Carboxy-2',7'-dichlorofluorescein 144316-86-9, 6-Carboxy-2',7'-dichlorofluorescein
RL: PROC (Process)
(luminescence quenching of, in pH determination)

L80 ANSWER 17 OF 18 HCAPLUS COPYRIGHT 2004 ACS on STN
1992:556559 Document No. 117:156559 Indicators for the **optical** measurement of sulfur dioxide gas. Sharma, Ashutosh; Ali, Zulfiqur; McStay, Daniel (Opt. Diagn. Biotechnol. Cent., Cranfield Inst. Technol., Cranfield/Bedfordshire, MK43 0AL, UK). Proceedings of SPIE-The International Society for Optical Engineering, 1637(Environ. Process Monit. Technol.), 280-4 (English) 1992. CODEN: PSISDG. ISSN: 0277-786X.

AB A number of fluorophores were examined for their suitability as indicators in SO₂ measurement. Several indicators, including polycyclic aromatic hydrocarbons, 5- and 6-carboxy-4',5'-dimethyl fluorescein, new fuchsin, hydrazine hydrochloride, and chloropyridine hydrochloride, decreased the fluorescence intensity with an increase in SO₂ concentration. Fluorescence quenching of benzopurpurine is extremely efficient, with little or no interference from NH₃ and H₂S. Stern-Volmer plots of quenching were used to determine quenching consts. A fiber optic SO₂ sensor/probe based on these findings is under development.

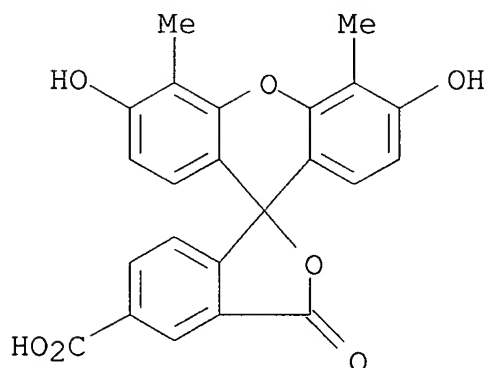
IT 100111-02-2 100111-03-3

RL: ANST (Analytical study)

(fluorophore, for sulfur dioxide determination in air)

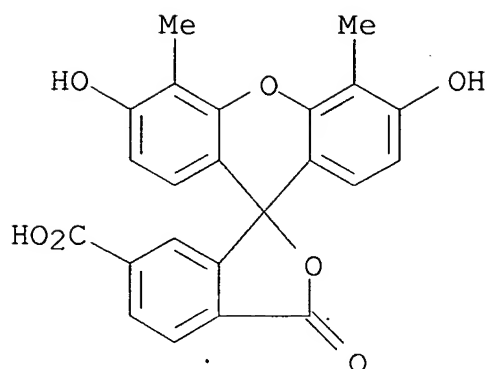
RN 100111-02-2 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthene]-5-carboxylic acid, 3',6'-dihydroxy-4',5'-dimethyl-3-oxo- (9CI) (CA INDEX NAME)



RN 100111-03-3 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthene]-6-carboxylic acid, 3',6'-dihydroxy-4',5'-dimethyl-3-oxo- (9CI) (CA INDEX NAME)



CC 59-1 (Air Pollution and Industrial Hygiene)

Section cross-reference(s): 79

IT Sensors

(gas, fiber-optic, for sulfur dioxide determination, by fluorescence quenching)

IT 992-59-6, Benzopurpurine 4B 3248-91-7 7379-35-3 14011-37-1, Hydrazine hydrochloride 100111-02-2 100111-03-3

RL: ANST (Analytical study)

(fluorophore, for sulfur dioxide determination in air)

L80 ANSWER 18 OF 18 HCAPLUS COPYRIGHT 2004 ACS on STN

1988:429996 Document No. 109:29996 Silver halide color photographic material

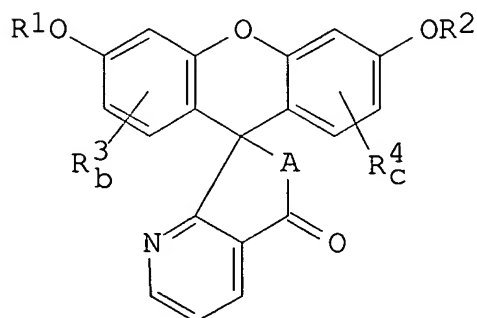
containing leuco dyes, reducing agent, and polymerizable material.

Harada, Toru; Sato, Kozo (Fuji Photo Film Co., Ltd., Japan). Jpn.

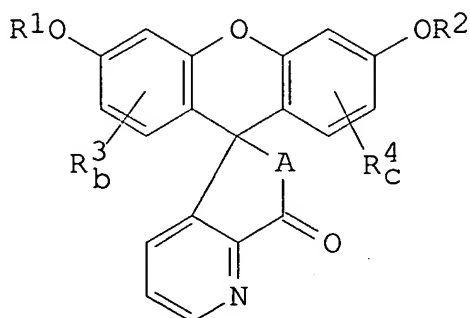
Kokai

Tokkyo Koho JP 62288828 A2 19871215 Showa, 24 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1986-133092 19860609.

GI



I



II

AB A color photog. material having a high signal/noise ratio is claimed which

comprises a support, Ag halide, a reducing agent, a polymerizable material, and a leuco dye I or II [A = 0, NClH₄Ra; R = group having a σ (substituent > 0; R₁, R₂ = (cyclo)alkyl, aralkyl; R₃, R₄ = (cyclo)alkyl, aralkyl, alkoxy, aryoxy; a, b, c = 1, 2].

IT 115128-15-9P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);

RACT

(Reactant or reagent)

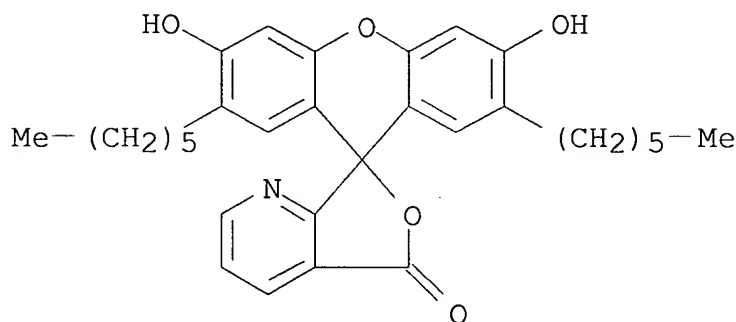
(preparation and reaction of, leuco dye from, color photog.

material containing

reducing agent, polymerizable material and)

RN 115128-15-9 HCAPLUS

CN Spiro[furo[3,4-b]pyridine-7(5H),9'-[9H]xanthen]-5-one,
2',7'-dihexyl-3',6'-dihydroxy- (9CI) (CA INDEX NAME)



IC ICM G03C001-68

ICS G03C001-00; G03C001-02

CC 74-2 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

IT 115128-15-9P 115128-16-0P 115147-61-0P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);

RACT

(Reactant or reagent)

(preparation and reaction of, leuco dye from, color photog.

material containing

reducing agent, polymerizable material and)

=> => d his 184-

FILE 'REGISTRY' ENTERED AT 14:55:02 ON 10 DEC 2004

L84 1 S 87569-95-7
L85 1 S 2321-07-5
L86 1 S 17372-87-1

FILE 'HCAPLUS' ENTERED AT 14:55:42 ON 10 DEC 2004

L87 8267 S L84 OR L85 OR L86
L88 8266 S L85 OR L86
L89 28 S L82 NOT L88

=> d l89 1-28 cbib abs hitstr hitind

L89 ANSWER 1 OF 28 HCAPLUS COPYRIGHT 2004 ACS on STN
2004:17479 Document No. 140:70977 Method of measuring drug-metabolizing
enzyme activity, method of evaluating inhibition of drug-metabolizing
enzyme activity, and composition for these methods. Matsui, Kazuhiro;
Ishibashi, Takuya; Oka, Masanori (Toyo Boseki Kabushiki Kaisha,
Japan).

Eur. Pat. Appl. EP 1378751 A2 20040107, 39 pp. DESIGNATED STATES: R:
AT,
BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI,
LT,
LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK. (English). CODEN:
EPXXDW. APPLICATION: EP 2003-14486 20030702. PRIORITY: JP

2002-193795
20020702; JP 2002-193796 20020702; JP 2002-229065 20020806; JP
2002-229066
20020806; JP 2002-229067 20020806.

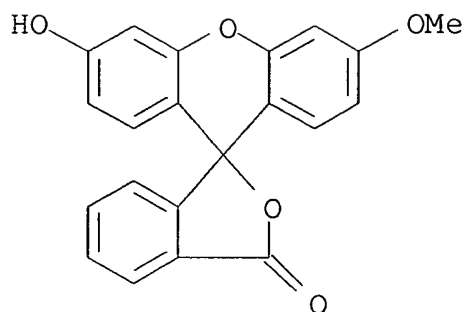
AB The present invention provides a method of measuring drug-metabolizing
enzyme activity, wherein a drug-metabolizing enzyme is first applied
to a
substrate (particularly an endogenous unmodified substrate), and
measurement is performed preferably within three hours by immunochem.
assay of the resulting product.

IT 70672-05-8
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(substrate; method of measuring drug-metabolizing enzyme activity
and

method of evaluating inhibition of drug-metabolizing enzyme
activity
and composition for these methods)

RN 70672-05-8 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one,
3'-hydroxy-6'-methoxy-
(9CI) (CA INDEX NAME)



IC ICM G01N033-53
ICS G01N033-543
CC 1-2 (Pharmacology)
Section cross-reference(s): 2, 7
IT 50-12-4, Mephenytoin 52-86-8, Haloperidol 53-16-7, Estrone,
biological
studies 53-35-0, 6 β -Hydroxycortisol 57-83-0, Progesterone,
biological studies 58-08-2, Caffeine, biological studies 58-22-0,
Testosterone 63-05-8, Androstenedione 64-77-7, Tolbutamide
80-08-0,
Dapsone 103-90-2, Acetaminophen 521-18-6, Dihydrotestosterone
581-88-4, Debrisoquine sulfate 3066-12-4, 11 α -Hydroxytestosterone
5543-57-7, (S)-Warfarin 5543-58-8, (R)-Warfarin 5725-89-3,
Methoxyresorufin 15307-86-5, Diclofenac 18609-21-7,
Dextromethorphan
hydrochloride 27203-92-5, Tramadol 33069-62-4, Taxol 54340-62-4,
Bufuralol 59467-70-8, Midazolam 65846-44-8 **70672-05-8**
73590-58-6, Omeprazole 115453-82-2,
7-Ethoxy-4-trifluoromethylcoumarin
117620-77-6 131802-60-3, 7-Benzyloxyquinoline 641629-24-5
641629-25-6
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(substrate; method of measuring drug-metabolizing enzyme activity
and
method of evaluating inhibition of drug-metabolizing enzyme
activity
and composition for these methods)

L89 ANSWER 2 OF 28 HCAPLUS COPYRIGHT 2004 ACS on STN
2003:904195 Document No. 140:245948 Identification of gap junction
blockers
using automated fluorescence microscopy **imaging**. Li, Zhuyin;
Yan, Yongping; Powers, Elaine A.; Ying, Xiaoyou; Janjua, Khurram;
Garyantes, Tina; Baron, Bruce (Lead Discovery Technology, Lead
Generation,
Aventis Pharmaceutical, Bridgewater, NJ, USA). Journal of
Biomolecular

Screening, 8(5), 489-499 (English) 2003. CODEN: JBISF3. ISSN: 1087-0571.

Publisher: Sage Publications.

AB Gap junctions coordinate elec. signals and facilitate metabolic synchronization between cells. In this study, the authors have developed

a novel assay for the identification of gap junction blockers using fluorescence microscopy **imaging**-based high-content screening technol. In the assay, the communication between neighboring cells through gap junctions was measured by following the redistribution of

a fluorescent marker. The movement of calcein **dye** from **dye**-loaded donor cells to **dye**-free acceptor cells through gap junctions overexpressed on cell surface membranes was monitored using automated fluorescence microscopy **imaging** in a high-throughput compatible format. The fluorescence **imaging** technol. consisted of automated focusing, image acquisition, image processing, and data mining. The authors have successfully performed

a high-throughput screening of a 486,000- compound program with this assay, and they were able to identify false positives without addnl. expts. Selective and pharmacol. interesting compds. were identified for further optimization.

IT 1461-15-0, Calcein

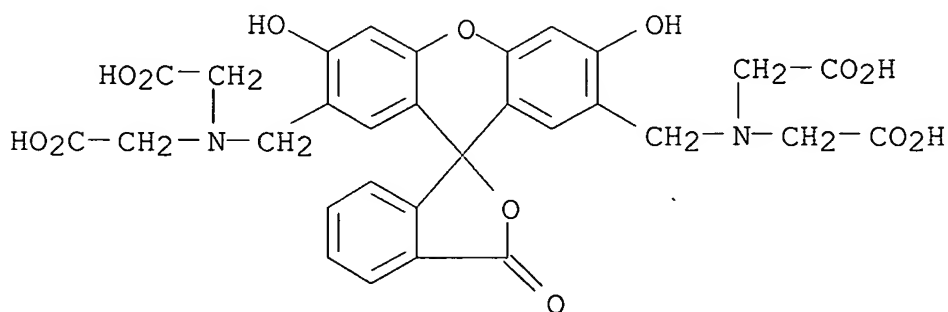
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)

(identification of gap junction blockers using automated fluorescence microscopy **imaging**)

RN 1461-15-0 HCAPLUS

CN Glycine, N,N'-[(3',6'-dihydroxy-3-oxospiro[isobenzofuran-1(3H),9'-[9H]xanthene]-2',7'-diyl)bis(methylene)]bis[N-(carboxymethyl)- (9CI)

(CA INDEX NAME)



CC 1-1 (Pharmacology)

IT **Imaging**

(fluorescent; identification of gap junction blockers using automated fluorescence microscopy **imaging**)

IT Cell junction

(gap junction; identification of gap junction blockers using automated fluorescence microscopy **imaging**)

IT Fluorescent substances

High throughput screening

Optical imaging devices

(identification of gap junction blockers using automated fluorescence microscopy **imaging**)

IT **1461-15-0**, Calcein

RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)

(identification of gap junction blockers using automated fluorescence microscopy **imaging**)

L89 ANSWER 3 OF 28 HCAPLUS COPYRIGHT 2004 ACS on STN

2002:693235 Document No. 137:213266 Non-separation assay method and system

using opaque particles. Cassells, John; Cope, Tristan John (The Technology Partnership Public Limited Company, UK). Eur. Pat. Appl.

EP

1239284 A1 20020911, 17 pp. DESIGNATED STATES: R: AT, BE, CH, DE,

DK,

ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO,

MK,

CY, AL, TR. (English). CODEN: EPXXDW. APPLICATION: EP 2001-302110 20010308.

AB A method for performing a non-separation assay for determining the level of binding

of one component to another. A first component is provided incorporating

a fluorescent probe dissolved or suspended in solution A substantially

opaque particle is provided onto or into which is incorporated binding sites for the first component and optionally incorporating a **dye** or fluorophore of different emission spectrum to the first component.

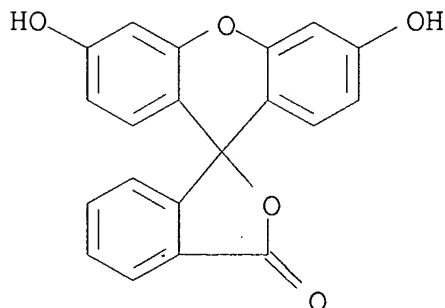
The

opaque particle is immersed in a solution or suspension of the first component, and the opaque particle to settle out of the solution, or

be

transported to a fixed position by an applied force. The solution and opaque particle are illustrated with a beam of light such that the opaque particle is in the foreground and attenuates and illuminating beam before it passes into the solution beyond. The intensity of received light (fluorescence) from the first component over an area of the sample with an imaging or scanning detector from the same side of the sample as the illuminating light is determined, and the position of the second component in the sample is determined by detecting attenuation of the received light from the sample and/or by detecting the presence of received light from a dye incorporated in the second component. An apparatus, as well as opaque particles for performing the method are also provided.

IT 27072-45-3, Fluorescein isothiocyanate
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses) (non-separation assay method and system using opaque particles)
RN 27072-45-3 HCAPLUS
CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one, 3',6'-dihydroxy-5(or 6)-isothiocyanato- (9CI) (CA INDEX NAME)



D1-N=C=S

IC ICM G01N033-53
ICS G01N033-543; G01N033-58; G01N033-542
CC 9-16 (Biochemical Methods)
IT Analytical apparatus
Cell membrane
Centrifugation
Density
Dissolution
Dyes

Electric charge
Electrophoresis
Electrostatic charge
Emission spectra
Eubacteria
Fluorescence
Fluorescent indicators
Fluorescent substances
Force
Gravity
Illumination

Imaging

Light
Magnetic field
Magnetic particles
Molecules

Optical imaging devices

Samples
Sensors
Separation
Solutions
Suspensions
Virus
Volume
Wavelength
Wetting

(non-separation assay method and system using opaque particles)

IT 27072-45-3, Fluorescein isothiocyanate

RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(non-separation assay method and system using opaque particles)

L89 ANSWER 4 OF 28 HCAPLUS COPYRIGHT 2004 ACS on STN

2002:578876 Document No. 138:267841 Fluorescence data analysis on
gel-based

biochips. Barsky, Victor; Perov, Alexander; Tokalov, Sergei;
Chudinov,

Alexander; Kreindlin, Edward; Sharonov, Alexei; Kotova, Ekaterina;
Mirzabekov, Andrei (Engelhardt Institute of Molecular Biology, Russian
Academy of Sciences, Moscow, Russia). Journal of Biomolecular

Screening,

7(3), 247-257 (English) 2002. CODEN: JBISF3. ISSN: 1087-0571.
Publisher: Mary Ann Liebert, Inc..

AB A series of biochip readers developed for gel-based biochips includes
three **imaging** models and a novel nonimaging biochip scanner.
The **imaging** readers, ranging from a research-grade versatile
reader to a simple portable one, use wide-field objectives and 12-bit
digital large-coupled device cameras for parallel addressing of
multiple

array elements. This feature is valuable for monitoring the kinetics of sample interaction with immobilized probes. Depending on the model and the label used, the sensitivity of these readers approaches 0.3 amol of a labeled sample per gel element. In the selective scanner, both the spot size of the excitation laser beam and the detector field of view match the size of the biochip array elements so that the whole row of the array can be read in a single scan. The portable version reads 50-mm long, 150-element, one-dimensional arrays in 5 s. With a dynamic range of 4000:1, a sensitivity of 1-5 amol of a labeled sample per gel element, and a data format facilitating online processing, the scanner is an attractive, inexpensive solution for biomedical diagnostics.

Fluorophores

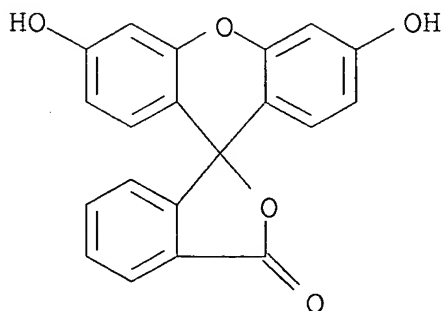
for sample labeling were compared exptl. in terms of detection sensitivity, influence on duplex stability, and suitability for multilabel anal. and thermodyn. studies. Texas Red and tetracarboxyphenylporphyrin proved to be the best choice for two-wavelength anal. using the **imaging** readers.

IT 27072-45-3, Fluorescein isothiocyanate

RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses) (**imaging** and nonimaging fluorescent biochip readers for gel-based biochips and comparison of fluorescent **dyes**)

RN 27072-45-3 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one, 3',6'-dihydroxy-5(or 6)-isothiocyanato- (9CI) (CA INDEX NAME)



D1-N=C=S

CC 9-1 (Biochemical Methods)
IT **Imaging**
 Optical imaging devices
 (fluorescent; **imaging** and nonimaging fluorescent biochip
 readers for gel-based biochips and comparison of fluorescent
 dyes)
IT CCD cameras
 Fluorescent **dyes**
 Microarray technology
 Optical scanners
 (**imaging** and nonimaging fluorescent biochip readers for
 gel-based biochips and comparison of fluorescent **dyes**)
IT DNA
 Oligonucleotides
 RL: ANT (Analyte); ANST (Analytical study)
 (**imaging** and nonimaging fluorescent biochip readers for
 gel-based biochips and comparison of fluorescent **dyes**)
IT 14609-54-2 **27072-45-3**, Fluorescein isothiocyanate 70281-37-7,
 Tetramethylrhodamine 82354-19-6, Texas Red 113078-49-2
146368-14-1
 146368-16-3 165599-63-3, BODIPY FL 209340-49-8, BODIPY 630/650
 RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
 (**imaging** and nonimaging fluorescent biochip readers for
 gel-based biochips and comparison of fluorescent **dyes**)

L89 ANSWER 5 OF 28 HCAPLUS COPYRIGHT 2004 ACS on STN
2002:256575 Document No. 136:275685 Quantitative digital fluorography
and
 related products and methods. Botz, Eduard J.; Rana, Victoriano F.;
 Newton, Kenneth R.; Lin, Tsue-ming (Hyperion, Inc., USA). PCT Int.
Appl.
 WO 2002027296 A1 20020404, 26 pp. DESIGNATED STATES: W: AE, AG, AL,
AM,
AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE,
DK,
DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP,
KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,
MX,
MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT,
TZ,
UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM;
RW:
AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB,
GR,
IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English).
CODEN: PIXXD2. APPLICATION: WO 2001-US42219 20010917. PRIORITY: US

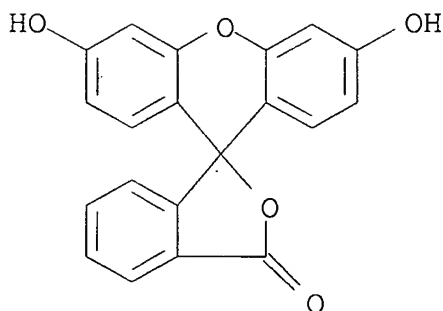
2000-671956 20000927.

AB The present invention thus relates to marker components, fluorescent probes, oligonucleotides, hybridization assays, and binding assays such as immunoassays, DNA assays and receptor assays using such products and methods for making such products. According to the present invention, delectably labeled marker components are provided thus comprise a fluorophore moiety coupled to two or more small solubilizing axial ligands, which preferably reduce or remove the problems of solvent sensibility and non-specific binding.

IT **27072-45-3, Fitc**
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses) (quant. digital fluorog. and related products and methods)

RN 27072-45-3 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one, 3',6'-dihydroxy-5(or 6)-isothiocyanato- (9CI). (CA INDEX NAME)



D1-N=C=S

IC ICM G01N015-14

CC 9-5 (Biochemical Methods)
Section cross-reference(s): 3, 14, 15

IT Electrooptical **imaging** devices
(digital cameras; quant. digital fluorog. and related products and methods)

IT **Imaging**
(luminescence; quant. digital fluorog. and related products and methods)

IT AIDS (disease)
Algorithm
Animal tissue
Autoimmune disease
Body fluid
CCD cameras

Calibration
Cell nucleus
Chlamydia
Classification
Coupling reaction
Crosslinking
Cytomegalovirus
Cytoplasm
DNA microarray technology
Diagnosis
Dot blot hybridization
Drying
Fluorescence
Fluorescent **dyes**
Fluorescent indicators
Fluorescent substances
Granulomatous disease
Herpesviridae
Human

Imaging

Immobilization, molecular or cellular
Immunoassay
Infection
Least squares method
Liquids
Luminescence
Luminescent substances
Lyme disease
Mathematical methods
Microarray technology
Microtiter plates
Neutrophil
Northern blot hybridization
Nucleic acid hybridization
Optical absorption

Optical imaging devices

Pathogen
Photodiodes
Photomultipliers
Prokaryota
Rheumatoid arthritis
Robotics
Rubella
Samples
Solids
Solubilization
Solvents
Southern blot hybridization

Suspensions
Video cameras
Virus
Washing
Wavelength

(quant. digital fluorog. and related products and methods)

IT 27072-45-3, Fitc

RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(quant. digital fluorog. and related products and methods)

L89 ANSWER 6 OF 28 HCAPLUS COPYRIGHT 2004 ACS on STN

2001:453279 Document No. 135:57846 Diethoxyfluorescein as a substrate
for

human cytochrome P 450 and use of diethoxyfluorescein for high
throughput

inhibition screening assays. Bambal, Ramesh; Bloomer, Jacqueline
Carol

(Smithkline Beecham P.L.C., UK; Smithkline Beecham Corporation). PCT
Int.

Appl. WO 2001044495 A2 20010621, 9 pp. DESIGNATED STATES: W: AE,

AG, AL,

AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE,

DK,

DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP,

KE,

KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,

MX,

MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT,

TZ,

UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM;

RW:

AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB,

GR,

IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English).

CODEN: PIXXD2. APPLICATION: WO 2000-EP12450 20001208. PRIORITY: US
1999-PV170405 19991213.

AB Diethoxyfluorescein has been identified as a general substrate for
human

cytochrome P 450. In particular diethoxyfluorescein is an improved
substrate for human cytochrome P 450 3A4 (CYP3A4) and cytochrome P
450 2C8

(CYP2C8), which is of use for configuring high throughput inhibition
screening assays. An assay for identifying inhibitors of human
cytochrome

P 450 using diethoxyfluorescein as the substrate and measuring
inhibition

of O-dealkylation of diethoxyfluorescein by the enzyme. The readily
quantifiable fluorescent product can be scanned.

IT 87569-95-7

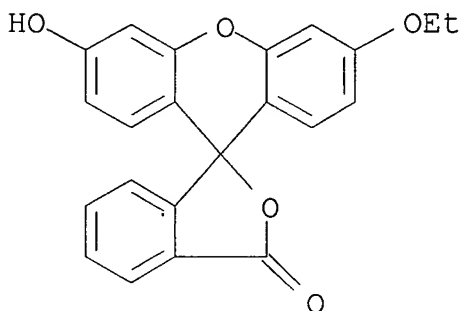
RL: ARG (Analytical reagent use); BSU (Biological study, unclassified);

MFM (Metabolic formation); THU (Therapeutic use); ANST (Analytical study);

BIOL (Biological study); FORM (Formation, nonpreparative); USES (Uses) (diethoxyfluorescein as substrate for human cytochrome P 450 and use of diethoxyfluorescein for high throughput inhibition screening assays)

RN 87569-95-7 HCAPLUS

CN Spiro[isobenzofuran-1(3H), 9'-[9H]xanthen]-3-one, 3'-ethoxy-6'-hydroxy- (9CI) (CA INDEX NAME)



IC ICM C12Q001-00

CC 7-1 (Enzymes)

Section cross-reference(s): 1

IT 87569-95-7

RL: ARG (Analytical reagent use); BSU (Biological study, unclassified);

MFM (Metabolic formation); THU (Therapeutic use); ANST (Analytical study);

BIOL (Biological study); FORM (Formation, nonpreparative); USES (Uses) (diethoxyfluorescein as substrate for human cytochrome P 450 and use of diethoxyfluorescein for high throughput inhibition screening assays)

L89 ANSWER 7 OF 28 HCAPLUS COPYRIGHT 2004 ACS on STN

2001:453254 Document No. 135:56900 Production with recombinant cells of human cdc25 phosphatases fused with MBP and method for identifying human

cdc25 phosphatase modulators. Goubin-Gramatica, Francoise; Ducommun, Bernard; Prevost, Gregoire (Societe de Conseils de Recherches et d'Applications Scientifiques (S.C.R.A.S.), Fr.). PCT Int. Appl. WO 2001044467 A2 20010621, 55 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT,

AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM,
DZ,
EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG,
KP,
KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ,
NO,
NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA,
UG,
US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT,
BE,
BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE,
IT,
LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (French). CODEN:
PIXXD2.

APPLICATION: WO 2000-FR3496 20001213. PRIORITY: FR 1999-15722
19991214;

FR 2000-6883 20000530; FR 2000-12008 20000921.

AB The invention concerns a method for obtaining human Cdc25B1, Cdc25B2,
Cdc25B3 and Cdc25C phosphatases. More particularly, the invention
concerns a fusion between human Cdc25B1, Cdc25B2, Cdc25B3 or Cdc25C
phosphatase and the maltose binding protein (MBP) of Escherichia
coli, the

DNAs coding for said fusion proteins, a method for preparing said
fusion

proteins, and a method for identifying human Cdc25B1, Cdc25B2,
Cdc25B3 or

Cdc25C protein modulators. Thus, a plasmid containing a gene for E.
coli MBP

fused to human CDC25C was constructed. E. coli transformed with this
plasmid was cultured to produce the fusion protein, which was isolated
using an amylose-agarose affinity column.

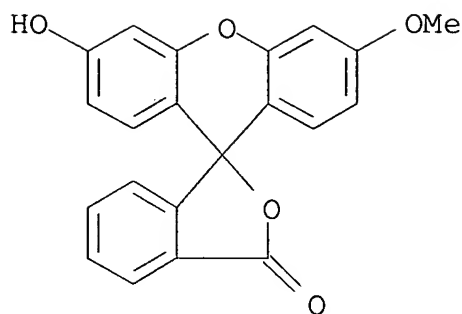
IT 70672-05-8

RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(production with recombinant cells of human cdc25 phosphatases
fused with

MBP and method for identifying human cdc25 phosphatase modulators)

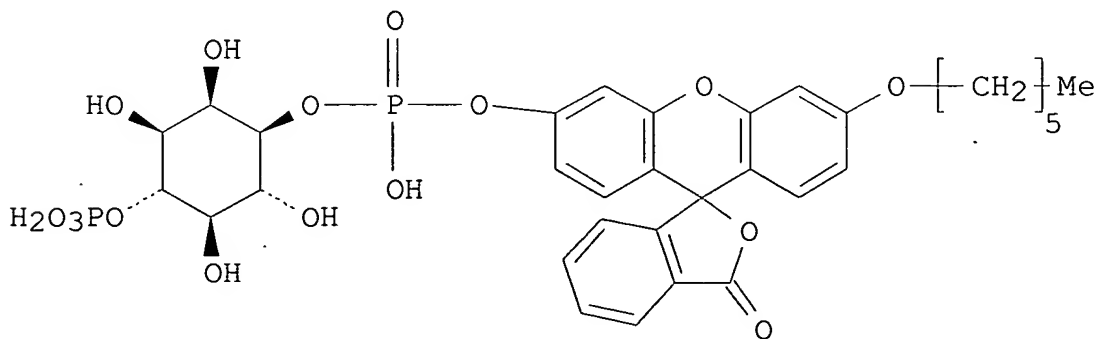
RN 70672-05-8 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one,
3'-hydroxy-6'-methoxy-
(9CI) (CA INDEX NAME)



IC ICM C12N015-12
ICS C12N009-16; C07K014-47; C12N015-62; C12Q001-42
CC 3-2 (Biochemical Genetics)
Section cross-reference(s): 7
IT 21214-18-6 70672-05-8
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(production with recombinant cells of human cdc25 phosphatases
fused with
MBP and method for identifying human cdc25 phosphatase modulators)

L89 ANSWER 8 OF 28 HCAPLUS COPYRIGHT 2004 ACS on STN
1999:306617 Document No. 131:127297 Synthesis of a new fluorogenic
substrate
for the continuous assay of mammalian phosphoinositide-specific
phospholipase C. Rukavishnikov, Aleksey V.; Zaikova, Tatiana O.;
Birrell,
G. Bruce; Keana, John F. W.; Griffith, O. Hayes (Department of
Chemistry,
University of Oregon, Eugene, OR, 97403, USA). Bioorganic & Medicinal
Chemistry Letters, 9(8), 1133-1136 (English) 1999. CODEN: BMCLE8.
ISSN:
0960-894X. Publisher: Elsevier Science Ltd..
GI



AB The synthesis of a fluorogenic substrate (I) for mammalian phosphoinositide-specific phospholipase C is described. I, based on the widely used fluorescein mol., is a water-soluble substrate analog of phosphatidylinositol-4-phosphate. I is shown to be a sensitive substrate

for human PI-PLC-81 in a continuous assay.

IT 214745-51-4

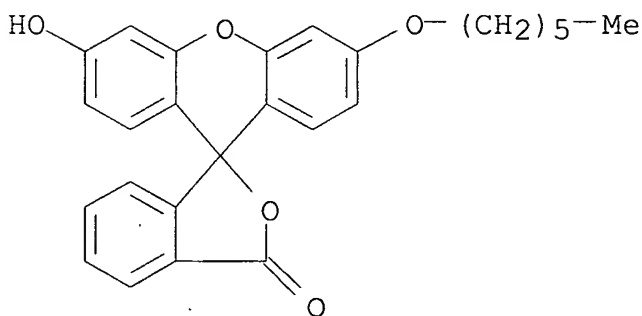
RL: RCT (Reactant); RACT (Reactant or reagent)

(synthesis of a new fluorogenic substrate for the continuous assay of

mammalian phosphoinositide-specific phospholipase C)

RN 214745-51-4 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one,
3'-(hexyloxy)-6'-hydroxy-
(9CI) (CA INDEX NAME)



CC 9-5 (Biochemical Methods)
Section cross-reference(s): 7, 33

IT 119874-35-0 214745-51-4

RL: RCT (Reactant); RACT (Reactant or reagent)

(synthesis of a new fluorogenic substrate for the continuous assay of

mammalian phosphoinositide-specific phospholipase C)

L89 ANSWER 9 OF 28 HCAPLUS COPYRIGHT 2004 ACS on STN

1998:731807 Document No. 129:348963 Spectrally tuned multiple bandpass filters for video displays. Teng, Chia-Chi; Suh, Suk Yoon; Yoon, Hyun-Nam

(Hoechst Celanese Corp., USA). U.S. US 5834122 A 19981110, 7 pp. (English). CODEN: USXXAM. APPLICATION: US 1996-753349 19961125.

AB Multiple band pass filters for contrast enhancement of color displays are

described which comprise a uniform layer having a plurality of selectively

transmitting and absorbing **dyes** intermixed in a polymer matrix.

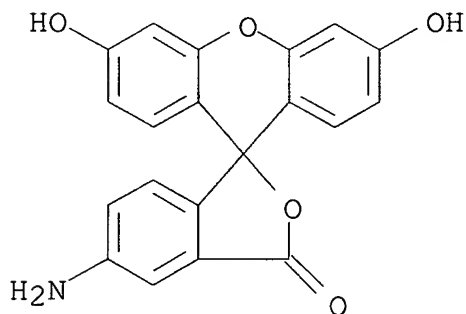
IT 3326-34-9 18472-87-2, Phloxine B

RL: DEV (Device component use); USES (Uses)

(spectrally tuned multiple bandpass filters based on **dye**
-containing polymer compns. for video displays)

RN 3326-34-9 HCAPLUS

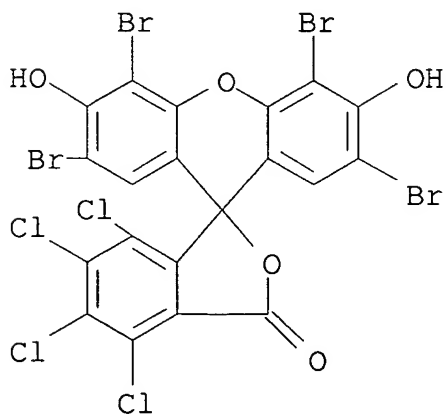
CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one,
5-amino-3',6'-dihydroxy-
(9CI) (CA INDEX NAME)



RN 18472-87-2 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one,
2',4',5',7'-tetrabromo-

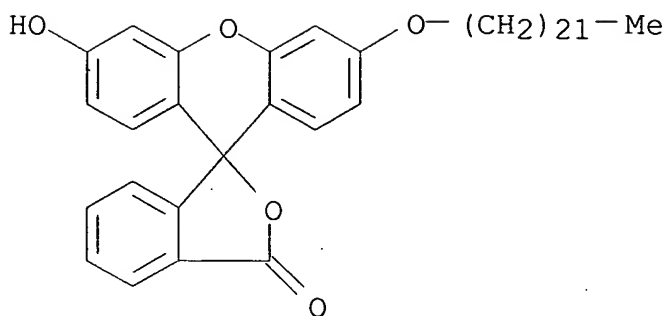
4,5,6,7-tetrachloro-3',6'-dihydroxy-, disodium salt (9CI) (CA INDEX
NAME)



IC ICM G02B001-10
ICS G02B001-11; G02B005-20
NCL 428412000
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 74
IT Polyesters, uses
Polyesters, uses
RL: DEV (Device component use); USES (Uses)
(polyamide-; spectrally tuned multiple bandpass filters based on dye-containing polymer compns. for video displays)
IT Polyamides, uses
Polyamides, uses
RL: DEV (Device component use); USES (Uses)
(polyester-; spectrally tuned multiple bandpass filters based on dye-containing polymer compns. for video displays)
IT Cycloalkenes
RL: DEV (Device component use); USES (Uses)
(polymers; spectrally tuned multiple bandpass filters based on dye-containing polymer compns. for video displays)
IT **Optical imaging devices**
(spectrally tuned multiple bandpass filters based on dye-containing polymer compns. for)
IT Optical filters
(spectrally tuned multiple bandpass filters based on dye-containing polymer compns. for video displays)
IT Acrylic polymers, uses
Polyamides, uses
Polycarbonates, uses
Polyesters, uses
Polyethers, uses
Polyketones
Polyolefins
Polyurethanes, uses
RL: DEV (Device component use); USES (Uses)
(spectrally tuned multiple bandpass filters based on dye-containing polymer compns. for video displays)
IT 1330-38-7, Luxol Fast Blue MBSN **3326-34-9** 9002-89-5, Polyvinyl alcohol 9003-20-7, Polyvinyl acetate 9003-53-6, Polystyrene **18472-87-2**, Phloxine B 60311-02-6, Sulforhodamine 101
RL: DEV (Device component use); USES (Uses)
(spectrally tuned multiple bandpass filters based on dye-containing polymer compns. for video displays)

L89 ANSWER 10 OF 28 HCAPLUS COPYRIGHT 2004 ACS on STN
1998:608674 Document No. 129:213838 Optical membrane films for polycation
detection and application to protamine determination. Wang, Enju (St.

John's University, USA). PCT Int. Appl. WO 9838263 A1 19980903, 40
pp.
DESIGNATED STATES: W: CA, JP; RW: AT, BE, CH, DE, DK, ES, FI, FR,
GB, GR,
IE, IT, LU, MC, NL, PT, SE. (English). CODEN: PIXXD2. APPLICATION:
WO
1998-US4004 19980227. PRIORITY: US 1997-39464 19970227.
AB Lipophilic fluorescein-based mols. have been synthesized and
incorporated
into thin plasticized polymeric membrane films as chromoionophores
for the
optical sensing and detection of polycationic protamine. The membrane
response is based on the extraction of protamine into the film due to
the
interaction between the anionic fluorescein and the protamine
polycation
which results in a cation exchange between the protamine and proton,
and
thus, induces an absorbance spectra change of the polymeric film. The
response speed is controlled by protamine diffusion through the
stagnant
diffusion layer adjacent to the film surface as well as within the
bulk of
the polymer film. When limited exposure time and non-stirring
detection
modes are used in a buffer solution, absorbance of a film changes as a
function of the protamine concentration in the range of about 2 to 60-
µg/mL
(0.44 to 13.3 µM). The sensing film shows good selectivity over most
common small cations, it can be used in the determination of
protamine in diluted
serum or whole blood. No response is observed when a protamine
complexing
reagent such as heparin is present, thus the instant invention is
useful
as an indicator for the protamine-heparin titration
IT 212632-14-9P
RL: ARG (Analytical reagent use); SPN (Synthetic preparation); ANST
(Analytical study); PREP (Preparation); USES (Uses)
(optical membrane films for polycation detection and application to
protamine determination)
RN 212632-14-9 HCAPLUS
CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one, 5(or 6)-amino-3'-
(docosyloxy)-6'-hydroxy- (9CI) (CA INDEX NAME)



D1-NH₂

IC ICM C09K003-00
ICS F21V009-00; C12Q001-00; C12Q001-37
CC 9-1 (Biochemical Methods)
IT 184423-23-2P, Benzoic acid,
2-(2,7-dichloro-6-hydroxy-3-oxo-3H-xanthen-9-yl)-, octadecyl ester 212632-11-6P **212632-14-9P**
RL: ARG (Analytical reagent use); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses)
(optical membrane films for polycation detection and application to protamine determination)

L89 ANSWER 11 OF 28 HCAPLUS COPYRIGHT 2004 ACS on STN
1998:256331 Document No. 128:308397 Preparation of fluorescein monoethers.
Fujita, Satoshi; Yu, Takeshi (Aisin Seiki Co., Ltd., Japan). Jpn. Kokai
Tokkyo Koho JP 10109990 A2 19980428 Heisei, 9 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1996-281714 19961002.

AB Title compds. are prepared by etherification of fluoresceins with n mol
equivalent halo compds. ($1 \leq n < 2$) in the presence of ≥ 1 mol equivalent basic compds. in solvents at 20-35° and treatment with acids. Fluorescein isocyanate was treated with 3,5-xylidine in EtOH at
room temperature for 18 h to give 100% N-(3,5-dimethylphenyl)-5-thioureidofluorescein, which was treated with 3,4-dimethylbenzyl chloride
in the presence of K₂CO₃ in DMF at room temperature for 2 h to give 99.2%
3'-O-N-(3,5-dimethylphenyl)methyl-N-(3,5-dimethylphenyl)-5-thioureidofluorescein.

IT 186187-60-0P 186187-63-3P 190899-06-0P

206255-96-1P

RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)

(preparation of fluorescein monoethers by etherification of fluoresceins

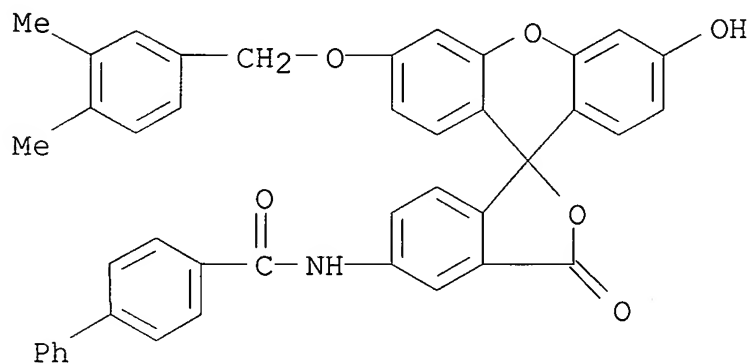
with halo compds.)

RN 186187-60-0 HCAPLUS

CN [1,1'-Biphenyl]-4-carboxamide, N-[3'-[(3,4-dimethylphenyl)methoxy]-6'-hydroxy-3-oxospiro[isobenzofuran-1(3H),9'-[9H]xanthen]-5-yl]- (9CI)

(CA

INDEX NAME)

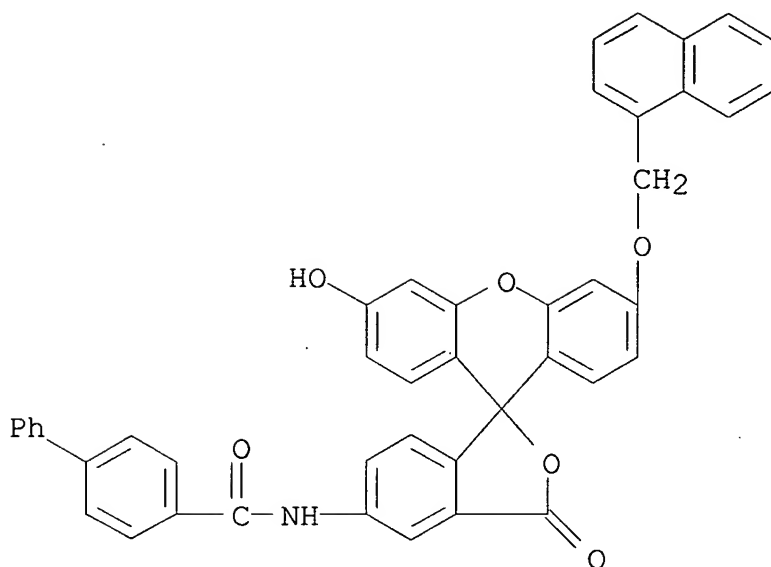


RN 186187-63-3 HCAPLUS

CN [1,1'-Biphenyl]-4-carboxamide,

N-[3'-hydroxy-6'-(1-naphthalenylmethoxy)-3-

oxospiro[isobenzofuran-1(3H),9'-[9H]xanthen]-5-yl]- (9CI) (CA INDEX NAME)



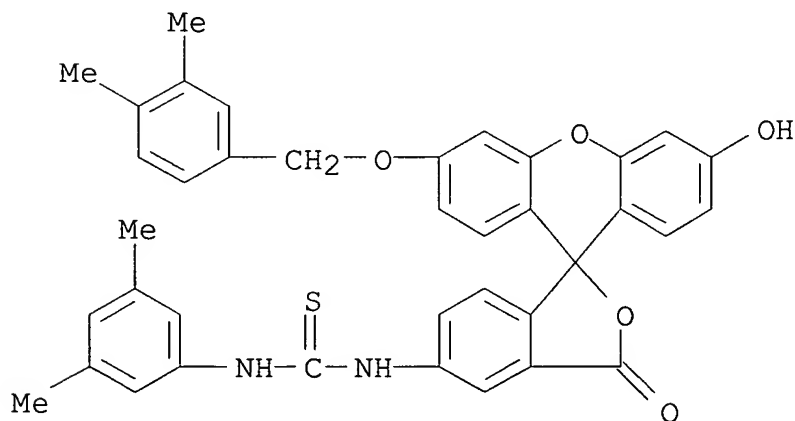
RN 190899-06-0 HCAPLUS

CN Thiourea,

N-(3,5-dimethylphenyl)-N'-[3'-[(3,4-dimethylphenyl)methoxy]-6'-hydroxy-3-oxospiro[isobenzofuran-1(3H),9'-[9H]xanthen]-5-yl]- (9CI)

(CA

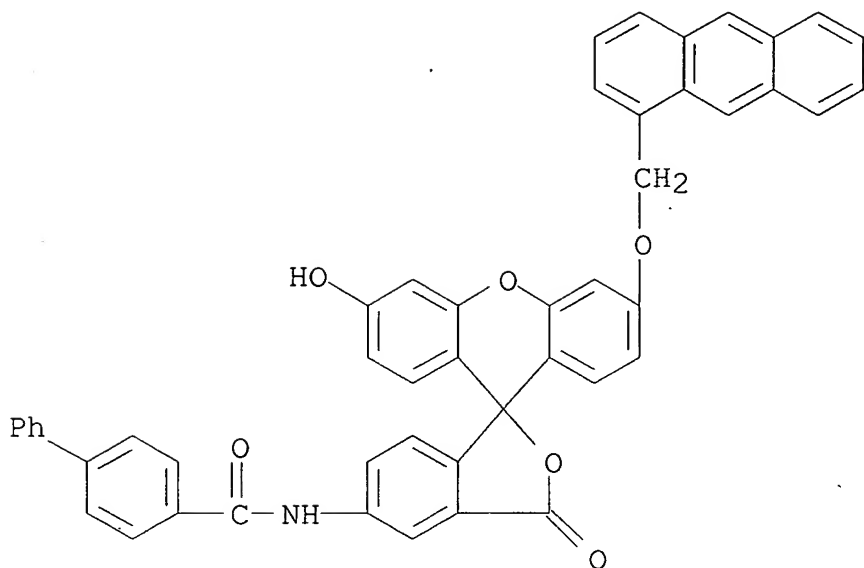
INDEX NAME)



RN 206255-96-1 HCAPLUS

CN [1,1'-Biphenyl]-4-carboxamide,

N-[3'-(1-anthracenylmethoxy)-6'-hydroxy-3-oxospiro[isobenzofuran-1(3H),9'-[9H]xanthen]-5-yl]- (9CI) (CA INDEX NAME)



IC ICM C07D493-10

ICS C09K011-06

CC 27-14 (Heterocyclic Compounds (One Hetero Atom))

IT **186187-60-0P 186187-63-3P 190899-06-0P**

202747-88-4P 202747-89-5P 206255-94-9P 206255-95-0P

206255-96-1P 206255-97-2P

RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)

(preparation of fluorescein monoethers by etherification of fluoresceins with halo compds.)

L89 ANSWER 12 OF 28 HCAPLUS COPYRIGHT 2004 ACS on STN

1998:256232 Document No. 129:14204 Assay of nucleic acids, etc., using peroxidase and fluorescent substrates, and peroxidase for it. Fujita, Satoshi; Kagiya, Naoto; Momiyama, Masayoshi; Kondo, Yasumitsu; Nishiyani, Miho (Aisin Seiki Co., Ltd., Japan). Jpn. Kokai Tokkyo

Koho

JP 10108693 A2 19980428 Heisei, 13 pp. (Japanese). CODEN: JKXXAF.

APPLICATION: JP 1996-283143 19961004.

AB Nucleic acids, protein, microorganisms, etc., are assayed by binding peroxidase to them, reacting the peroxidase-labeled analytes with fluorescent substrates, irradiating the reaction products with exciting

light, and detecting the fluorescence. Also claimed is peroxidase used

for the assay. Fifteen fluorescence substrates used for the assay are

also disclosed, and some of them are deacetylated by alkaline hydrolysis prior

to treating with peroxidase-labeled analytes. The assay method exhibited

good spacial resolution and sensitivity. Detection of λ DNA by spotting digoxigenin-labeled λ DNA on a nitrocellulose membrane, treating the spotted area with peroxidase-labeled anti-digoxigenin antibodies, dropping an EtOH solution containing Fast Violet B base and H₂O₂ to

the membrane, and measuring fluorescence was shown.

IT 186187-63-3P

RL: ARG (Analytical reagent use); PNU (Preparation, unclassified);

ANST

(Analytical study); PREP (Preparation); USES (Uses)

(assay of nucleic acids and proteins and microorganisms using peroxidase and fluorescent substrates)

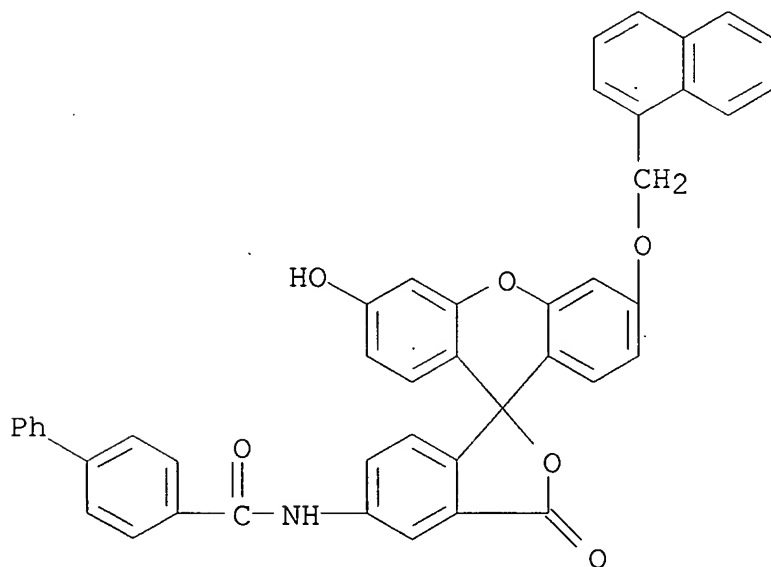
RN 186187-63-3 HCAPLUS

CN [1,1'-Biphenyl]-4-carboxamide,

N-[3'-hydroxy-6'-(1-naphthalenylmethoxy)-3-

oxospiro[isobenzofuran-1(3H),9'-[9H]xanthen]-5-yl]- (9CI) (CA INDEX

NAME)



IT 186187-60-0P 190899-06-0P 207671-33-8P

207671-40-7P

RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation);

RACT (Reactant or reagent)

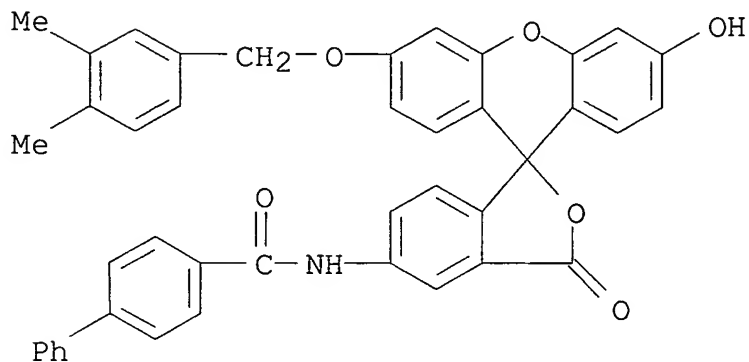
(assay of nucleic acids and proteins and microorganisms using

peroxidase and fluorescent substrates)

RN 186187-60-0 HCAPLUS

CN [1,1'-Biphenyl]-4-carboxamide, N-[3'-[(3,4-dimethylphenyl)methoxy]-6'-hydroxy-3-oxospiro[isobenzofuran-1(3H),9'-[9H]xanthen]-5-yl]- (9CI)

(CA
INDEX NAME)

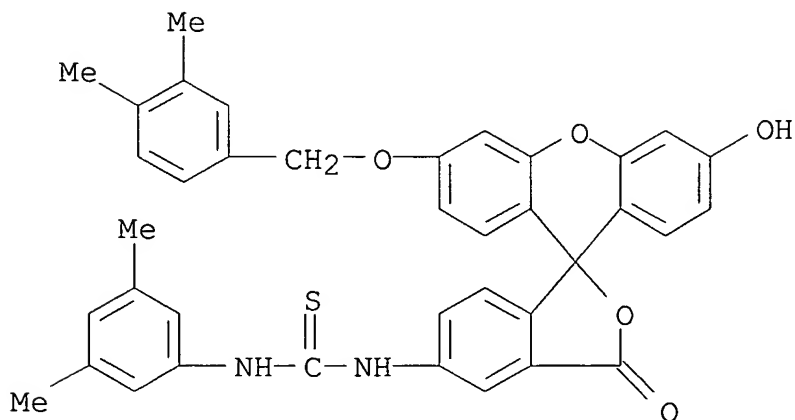


RN 190899-06-0 HCAPLUS

CN Thiourea,

N-(3,5-dimethylphenyl)-N'-[3'-[(3,4-dimethylphenyl)methoxy]-6'-hydroxy-3-oxospiro[isobenzofuran-1(3H),9'-[9H]xanthen]-5-yl]- (9CI)

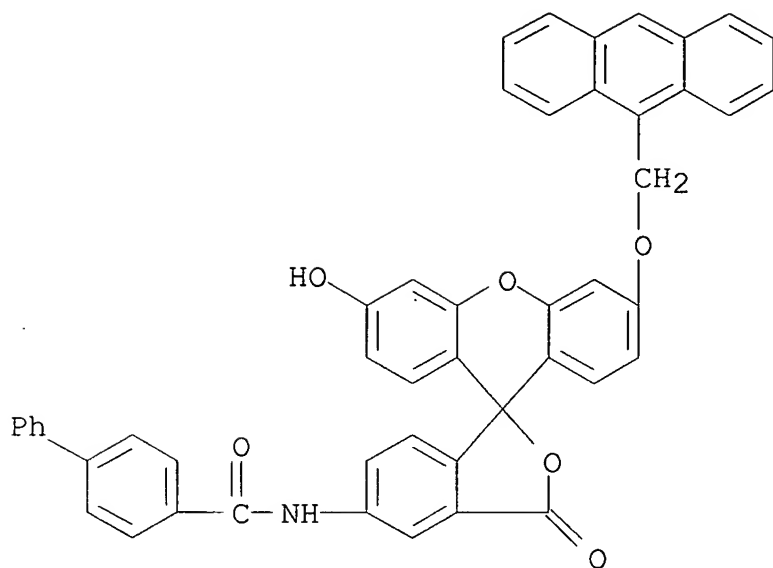
(CA
INDEX NAME)



RN 207671-33-8 HCAPLUS

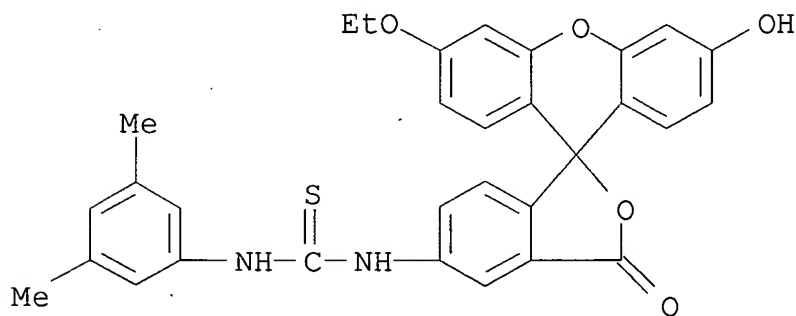
CN [1,1'-Biphenyl]-4-carboxamide,

N-[3'-(9-anthracenylmethoxy)-6'-hydroxy-3-oxospiro[isobenzofuran-1(3H),9'-[9H]xanthen]-5-yl]- (9CI) (CA INDEX NAME)



RN 207671-40-7 HCAPLUS

CN Thiourea, N-(3,5-dimethylphenyl)-N'-(3'-ethoxy-6'-hydroxy-3-oxospiro[isobenzofuran-1(3H),9'-[9H]xanthen]-5-yl)- (9CI) (CA INDEX NAME)



IC ICM C12Q001-28

ICS G01N021-78

CC 9-5 (Biochemical Methods)

IT 184476-27-5P 186187-55-3P **186187-63-3P** 188007-69-4P

207671-30-5P 207671-31-6P 207671-32-7P 207671-34-9P

207671-35-0P

207671-37-2P 207671-38-3P 207671-39-4P 207671-41-8P

RL: ARG (Analytical reagent use); PNU (Preparation, unclassified);

ANST

(Analytical study); PREP (Preparation); USES (Uses)

(assay of nucleic acids and proteins and microorganisms using peroxidase and fluorescent substrates)

IT 14002-51-8P, [1,1'-Biphenyl]-4-carbonyl chloride 186187-60-0P
190899-06-0P 202747-88-4P 202747-89-5P 207671-33-8P
207671-40-7P

RL: PNU (Preparation, unclassified); RCT (Reactant); PREP
(Preparation);

RACT (Reactant or reagent)

(assay of nucleic acids and proteins and microorganisms using peroxidase and fluorescent substrates)

L89 ANSWER 13 OF 28 HCAPLUS COPYRIGHT 2004 ACS on STN
1998:236207 Document No. 129:1978 Measurement of Na⁺,K⁺-ATPase activity
in

human skeletal muscle. Fraser, Steve F.; McKenna, Michael J.

(Department

of Human Movement, Recreation, and Performance, Centre for

Rehabilitation,

Exercise, and Sport Science, Victoria University of Technology,

Melbourne,

8001, Australia). Analytical Biochemistry, 258(1), 63-67 (English)

1998.

CODEN: ANBCA2. ISSN: 0003-2697. Publisher: Academic Press.

AB There are few published measures of Na⁺,K⁺-ATPase activity in human
skeletal muscle. This study investigated the suitability of the
K⁺-stimulated 3-O-methylfluorescein phosphatase assay for measurement
of

Na⁺,K⁺-ATPase activity in human skeletal muscle. Factors investigated
include enzyme kinetics, sample treatment, and ligand concentration

The addition of

ouabain blocked maximal K⁺-stimulated 3-O-methylfluorescein
phosphatase

(3-O-MFPase) activity, confirming the specificity of the assay.

Activity

was maximal using a multiple freeze-thaw treatment of the homogenate,
a 10

mM KCl activating concentration, and a 3-O-methylfluorescein
phosphatase

substrate concentration of 160 μ M, which is eight times higher than
previously

reported. From quadriceps muscle biopsies taken from seven healthy
untrained subjects, the maximal K⁺-stimulated 3-O-MFPase activity
determined

from the homogenates was (mean \pm SE) 292 \pm 10 nmol min⁻¹ .

g⁻¹ wet weight (1745 \pm 84 pmol min⁻¹ . mg⁻¹ protein). This value

is five times greater than previously published data for human

skeletal

muscle. The intra-assay variability was 8.1% and the interassay

variability was 5.3%. These modifications greatly enhanced the 3-O-MFPase

assay, with the improved enzymic conditions allowing valid, reliable measurement of Na⁺,K⁺-ATPase activity in small samples of human skeletal muscle.

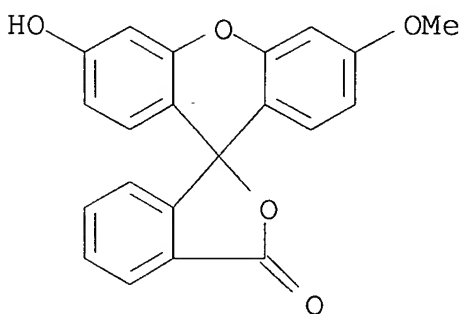
IT 70672-05-8

RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses) (determination of Na⁺,K⁺-ATPase activity in human skeletal muscle by a modified

K⁺-stimulated 3-O-methylfluorescein phosphatase assay)

RN 70672-05-8 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one,
3'-hydroxy-6'-methoxy-
(9CI) (CA INDEX NAME)



CC 7-1 (Enzymes)

IT 70672-05-8

RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses) (determination of Na⁺,K⁺-ATPase activity in human skeletal muscle by a modified

K⁺-stimulated 3-O-methylfluorescein phosphatase assay)

L89 ANSWER 14 OF 28 HCAPLUS COPYRIGHT 2004 ACS on STN

1998:151297 Document No. 128:201777 Automatic DNA sequencer and genotyper

having extended spectral response. Dabiri, Ali; Garner, Harold R. (Science Applications International Corporation, USA; Board of

Regents,

University of Texas System; Dabiri, Ali; Garner, Harold R.). PCT Int. Appl. WO 9808085 A1 19980226, 41 pp. DESIGNATED STATES: W: AL, AM,

AT,
AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI,
GB,
GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU,
LV,

MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK,
SL,
TJ, TM, TR, TT, UA, UG, US, UZ, VN, ZW, AM, AZ, BY, KG, KZ, MD, RU,
TJ,
TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, DE, DK, ES, FI, FR, GA,
GB,
GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (English).
CODEN: PIXXD2. APPLICATION: WO 1997-US14642 19970820. PRIORITY: US
1996-702767 19960822.

AB An advanced **imaging** spectrograph system includes an
electrophoresis device, an optical **imaging** device, and a
processor, configured to provide for slab-gel DNA sequencing and
genotyping with high throughput sequencing. The system is based on
the

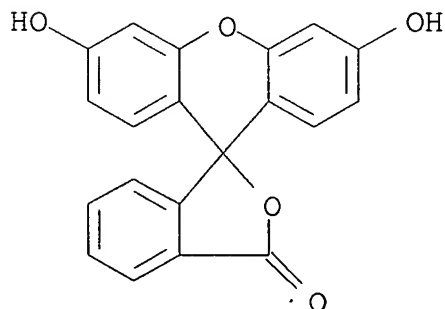
integration of improved electrophoresis structures with an **imaging**
spectrophotometer that records the entire emission spectra along an
imaging line across a sequencing gel (or capillary array). In one
embodiment, the electrophoresis device includes a large number of
parallel

lanes formed in an electrophoresis gel which is sandwiched between two
flat rectangular glass plates. The system includes spectral shape
matching to improve **dye** identification allowing the use of
dyes having nearly any emission spectra and allowing greater than
four **dye** multiplexing.

IT 27072-45-3D, FITC, nucleotide conjugates
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(as reporters in DNA sequencing; automatic DNA sequencer and
genotyper
having extended spectral response)

RN 27072-45-3 HCAPLUS

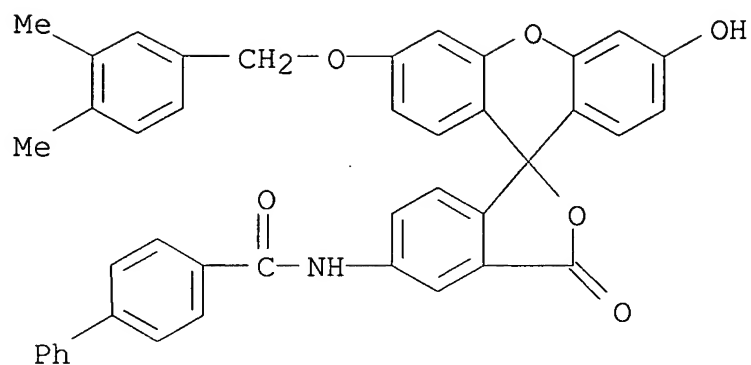
CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one, 3',6'-dihydroxy-5(or
6)-isothiocyanato- (9CI) (CA INDEX NAME)



D1-N=C=S

IC ICM G01N027-26
ICS G01N027-447
CC 3-1 (Biochemical Genetics)
Section cross-reference(s): 9
IT Fluorescent **dyes**
(as reporters in DNA sequencing; automatic DNA sequencer and
genotyper
having extended spectral response)
IT Spectrometers
Spectrometers
(**imaging**; automatic DNA sequencer and genotyper having
extended spectral response)
IT **Optical imaging devices**
Optical imaging devices
(spectrometers; automatic DNA sequencer and genotyper having
extended
spectral response)
IT **27072-45-3D**, FITC, nucleotide conjugates 29270-56-2D, NBD-F,
nucleotide conjugates 82354-19-6D, Texas Red, nucleotide conjugates
107347-53-5D, TRITC, nucleotide conjugates
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(as reporters in DNA sequencing; automatic DNA sequencer and
genotyper
having extended spectral response)

L89 ANSWER 15 OF 28 HCAPLUS COPYRIGHT 2004 ACS on STN
1998:144771 Document No. 128:155478 Convenient preparation of
fluorescein
derivatives. Fujita, Satoshi; Nakanishi, Shingo; Toru, Takeshi
(Department of Applied Chemistry, Nagoya Institute of Technology,
Showa-ku, Nagoya, 466, Japan). Synthetic Communications, 28(3),
387-393
(English) 1998. CODEN: SYNCAV. ISSN: 0039-7911. Publisher: Marcel
Dekker, Inc..
AB 3'-O-Aralkyl-5-(4-biphenylcarboxamido)- and 3'-O-aralkyl-5-[N'-(3,5-
dimethylphenyl)thioureido]fluorescein derivs. are prepared in high
yield by
alkylation of 5-(4-biphenylcarboxamido)- and 5-[N'-(3,5-
dimethylphenyl)thioureido]fluoresceins.
IT **186187-60-0P 186187-63-3P 202747-86-2P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(convenient preparation of fluorescein derivs.)
RN 186187-60-0 HCAPLUS
CN [1,1'-Biphenyl]-4-carboxamide, N-[3'-[(3,4-dimethylphenyl)methoxy]-6'-
hydroxy-3-oxospiro[isobenzofuran-1(3H),9'-[9H]xanthen]-5-yl]- (9CI)
(CA
INDEX NAME)

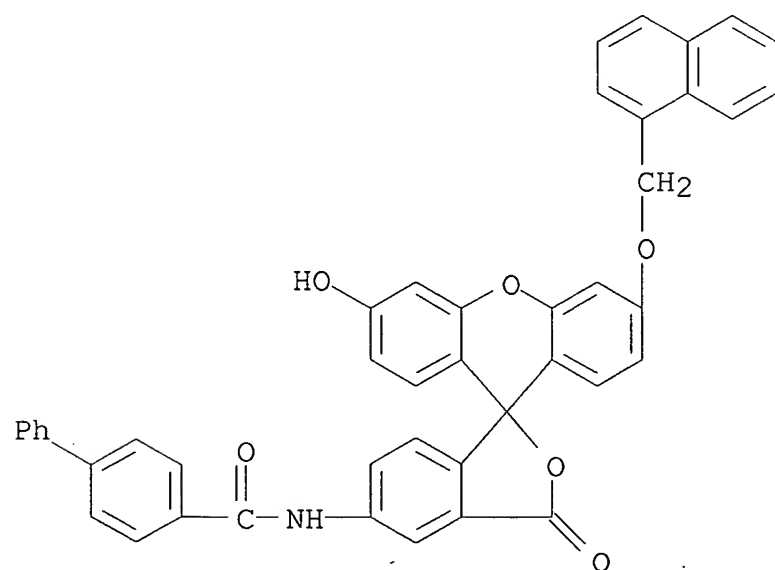


RN 186187-63-3 HCAPLUS

CN [1,1'-Biphenyl]-4-carboxamide,

N-[3'-hydroxy-6'-(1-naphthalenylmethoxy)-3-

oxospiro[isobenzofuran-1(3H), 9'-[9H]xanthen]-5-yl]- (9CI) (CA INDEX NAME)

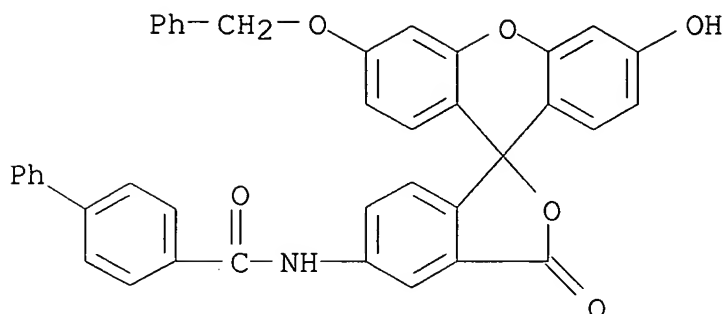


RN 202747-86-2 HCAPLUS

CN [1,1'-Biphenyl]-4-carboxamide, N-[3'-hydroxy-3-oxo-6'-

(phenylmethoxy)spiro[isobenzofuran-1(3H), 9'-[9H]xanthen]-5-yl]- (9CI)

(CA INDEX NAME)



CC 41-5 (Dyes, Organic Pigments, Fluorescent Brighteners, and Photographic Sensitizers)

IT 186187-60-0P 186187-63-3P 202747-86-2P

202747-87-3P 202747-88-4P 202747-89-5P

RL: SPN (Synthetic preparation); PREP (Preparation)
(convenient preparation of fluorescein derivs.)

L89 ANSWER 16 OF 28 HCAPLUS COPYRIGHT 2004 ACS on STN

1997:663990 Document No. 127:343581 Detection of nucleic acids and proteins

using fluorescein derivative phosphate esters. Fujita, Satoshi;

Kagiyama,

Naoto; Momiyama, Masayoshi; Kondo, Yasumitsu; Nishiyauchi, Miho (Aisin Seiki Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 09262099 A2

19971007

Heisei, 14 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP

1996-74815

19960328.

GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB Nucleic acids and proteins are detected by binding enzymes with the analytes, treating the labeled analytes with fluorescein derivative monophosphate esters, e.g., I, or diphosphate esters, e.g., II, and irradiating the resulting hydrolyzates with exciting light followed by detecting the emitted fluorescence. The method shows high

sensitivity and

is applied for detecting DNA, RNA, proteins, nucleic acid-protein complexes, etc., in liquid samples, on a solid support, in cells, and

in

chromosomes. A nylon membrane was spotted with λ DNA solns. of various concns., heated at 80° for 30 min, soaked in a solution of

skim milk, and treated with alkaline phosphatase-labeled anti-digoxin Fab fragment. The film was further treated with a solution of I (preparation given) in the dark at 37° for 1 h, followed by irradiation with UV light to detect fluorescence using a CCD camera. The detection limit was 5 fg.

IT 186187-57-5P 186187-60-0P 186187-63-3P
198074-76-9P

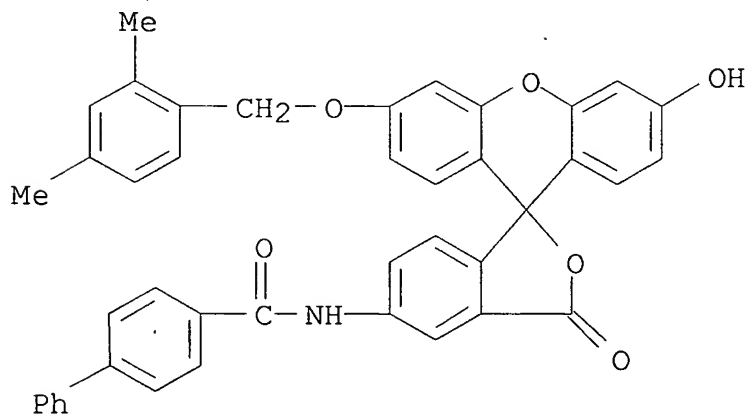
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);

RACT (Reactant or reagent)
(nucleic acids and proteins detection using fluorescein derivative phosphate esters)

RN 186187-57-5 HCAPLUS

CN [1,1'-Biphenyl]-4-carboxamide, N-[3'-[(2,4-dimethylphenyl)methoxy]-6'-hydroxy-3-oxospiro[isobenzofuran-1(3H),9'-[9H]xanthen]-5-yl]- (9CI)

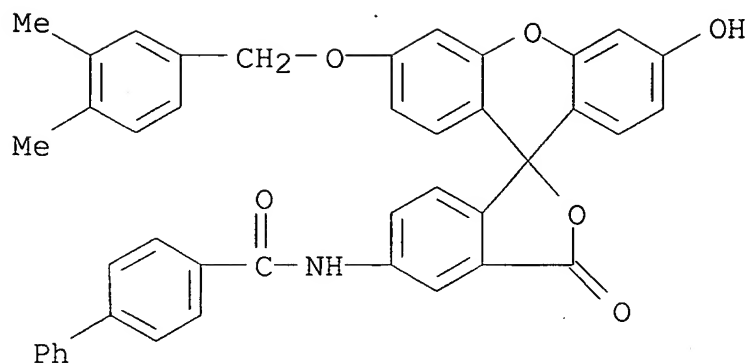
(CA INDEX NAME)



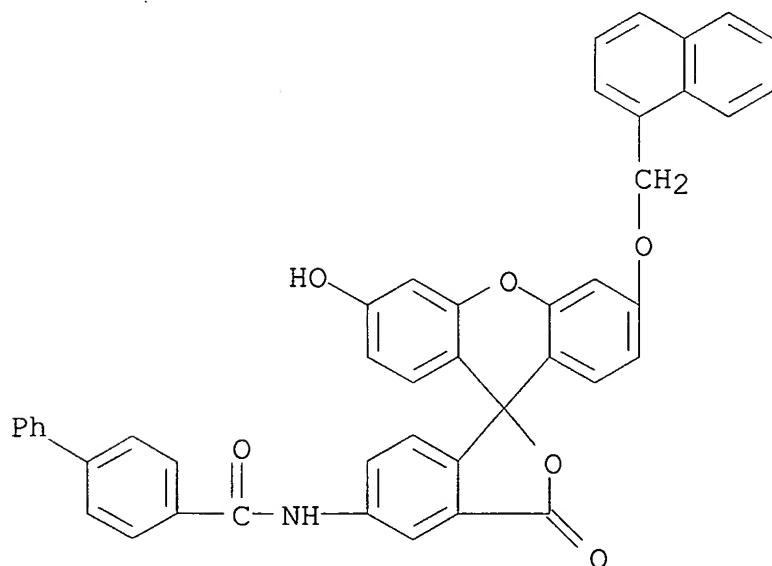
RN 186187-60-0 HCAPLUS

CN [1,1'-Biphenyl]-4-carboxamide, N-[3'-[(3,4-dimethylphenyl)methoxy]-6'-hydroxy-3-oxospiro[isobenzofuran-1(3H),9'-[9H]xanthen]-5-yl]- (9CI)

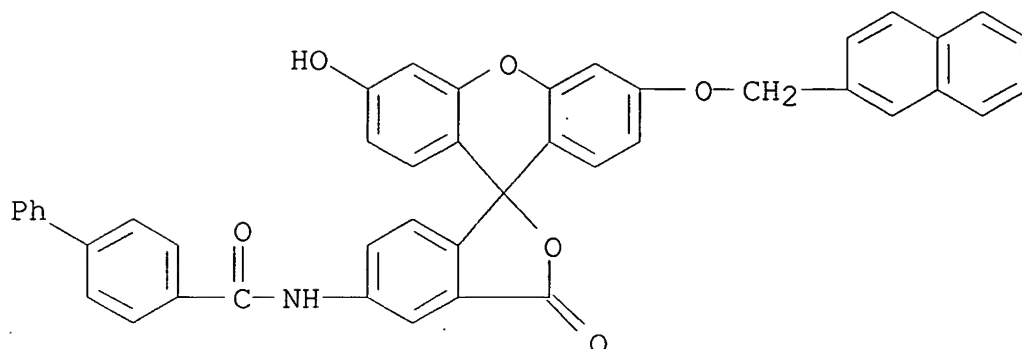
(CA INDEX NAME)



RN 186187-63-3 HCAPLUS
CN [1,1'-Biphenyl]-4-carboxamide,
N-[3'-hydroxy-6'-(1-naphthalenylmethoxy)-3-
oxospiro[isobenzofuran-1(3H),9'-[9H]xanthen]-5-yl]- (9CI) (CA INDEX
NAME)



RN 198074-76-9 HCAPLUS
CN [1,1'-Biphenyl]-4-carboxamide,
N-[3'-hydroxy-6'-(2-naphthalenylmethoxy)-3-
oxospiro[isobenzofuran-1(3H),9'-[9H]xanthen]-5-yl]- (9CI) (CA INDEX
NAME)



IC ICM C12Q001-68
ICS G01N021-64; G01N021-78; G01N033-50; C12N015-09
CC 9-5 (Biochemical Methods)
Section cross-reference(s): 3
IT 14002-51-8P, 4-Biphenylcarbonyl chloride 186187-55-3P
186187-57-5P 186187-60-0P 186187-63-3P
188007-59-2P 188007-84-3P **198074-76-9P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);
RACT
(Reactant or reagent)
(nucleic acids and proteins detection using fluorescein derivative
phosphate esters)

L89 ANSWER 17 OF 28 HCAPLUS COPYRIGHT 2004 ACS on STN
1997:338480 Document No. 127:29728 A novel fluorogenic substrate for
the use
of nucleic acid hybridization. Fujita, Satoshi; Toru, Takeshi;
Kondoh,
Yasumitsu; Momiyama, Masayoshi; Kagiya, Naoto; Hori, Samuel H.
(Department of Applied Chemistry, Nagoya Institute of Technology,
Nagoya,
466, Japan). Acta Histochemica et Cytochemica, 30(2), 165-172
(English)
1997. CODEN: ACHCBO. ISSN: 0044-5991. Publisher: Japan Society of
Histochemistry and Cytochemistry.
AB The phosphates derived from newly synthesized 3'-O-alkyl-5-(4-
biphenylcarbox-amido)fluorescein derivs. were examined for the
alkaline
phosphatase-linked fluorescence assay of the membrane-bound DNA.
λDNA was detectable to the amount of 5 fg in the assay using
phosphorylated 5-(4-biphenylcarboxamido)-3'-O-(1-
naphthyl)methylfluorescein (BNFP). The spots gave distinguishably
clear
fluorescence without diffusion and nonspecific adsorption. In the

Southern blot hybridization, 0.1 pg of DNA could be detected.

Detection

of two different DNAs on a single blot was successfully performed by using

two different fluorogenic phosphates, Phosphorylated

N-(2-biphenyl)-3-

hydroxy-2-naphtalenecarboxamide (HNPP) and BNFP. The fluorescein derivs.

were also examined as substrates for horseradish peroxidase.

IT 190899-06-0P 190899-07-1P

RL: ARU (Analytical role, unclassified); SPN (Synthetic preparation);

ANST

(Analytical study); PREP (Preparation)

(novel fluorogenic substrate for use in nucleic acid hybridization)

RN 190899-06-0 HCAPLUS

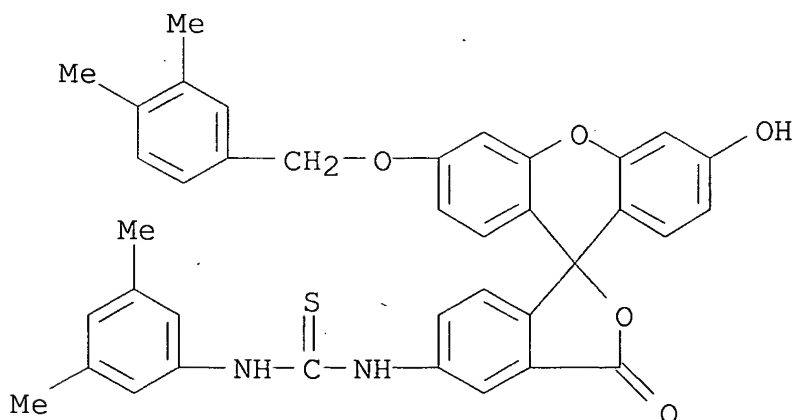
CN Thiourea,

N-(3,5-dimethylphenyl)-N'-[3'-[(3,4-dimethylphenyl)methoxy]-6'-

hydroxy-3-oxospiro[isobenzofuran-1(3H),9'-[9H]xanthen]-5-yl]- (9CI)

(CA

INDEX NAME)

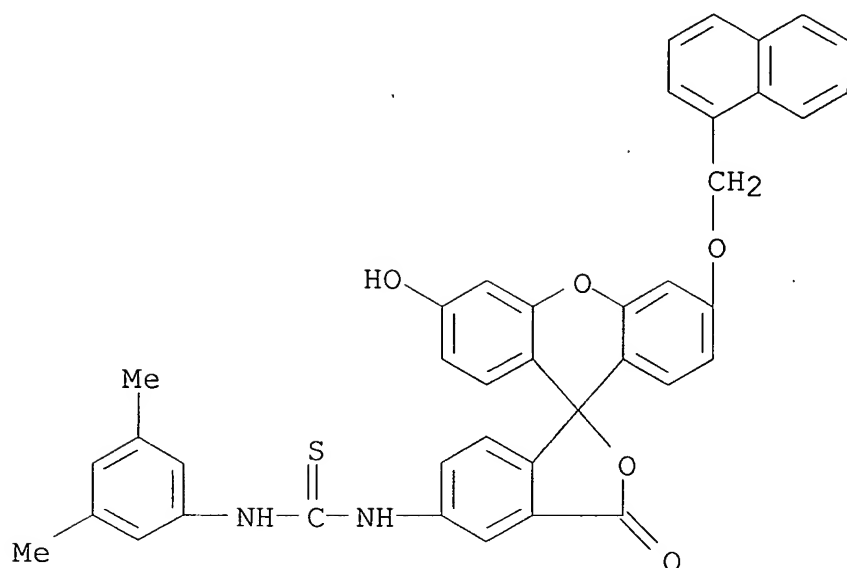


RN 190899-07-1 HCAPLUS

CN Thiourea,

N-(3,5-dimethylphenyl)-N'-[3'-hydroxy-6'-(1-naphthalenylmethoxy)-

3-oxospiro[isobenzofuran-1(3H),9'-[9H]xanthen]-5-yl]- (9CI) (CA INDEX NAME)



CC 3-1 (Biochemical Genetics)

Section cross-reference(s): 7

IT 186187-69-9P 186187-70-2P 186187-71-3P 188007-69-4P
190899-03-7P

190899-04-8P 190899-05-9P **190899-06-0P** 190899-07-1P

RL: ARU (Analytical role, unclassified); SPN (Synthetic preparation);

ANST

(Analytical study); PREP (Preparation)

(novel fluorogenic substrate for use in nucleic acid hybridization)

L89 ANSWER 18 OF 28 HCAPLUS COPYRIGHT 2004 ACS on STN

1996:590758 Document No. 125:342530 Comparison of the photoelectric
responses of monolayers of three fluorescein derivatives on SnO2
coated

substrate. Yuan, Feng; Bi, Zhi-chu; He, Jian-jun; Shen, Tao (Chinese
Acad. of Sciences, Beijing, 100101, Peop. Rep. China). Dyes and
Pigments,

32(1), 1-6 (English) 1996. CODEN: DYPIDX. ISSN: 0143-7208.

Publisher:

Elsevier.

AB Three types of fluorescein derivs. containing long alkyl chain(s) were
synthesized and characterized. Their monolayers on a SnO2 coated
substrate were fabricated, and their photoelec. responses evaluated.

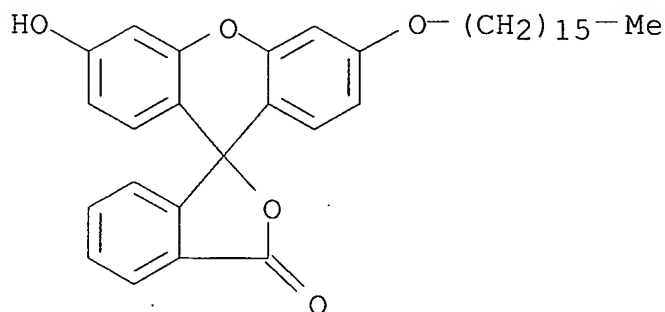
IT **167314-71-8P**

RL: DEV (Device component use); PRP (Properties); SPN (Synthetic
preparation); PREP (Preparation); USES (Uses)

(synthesis of fluorescein derivs. with long alkyl chains and
characterization of photoelec. responses of their monolayers on

SnO2

coated substrate)
RN 167314-71-8 HCAPLUS
CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one, 3'-(hexadecyloxy)-6'-hydroxy- (9CI) (CA INDEX NAME)



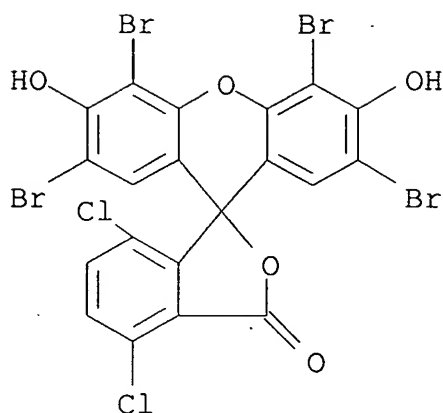
CC 74-1 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 76
IT 155556-88-0P **167314-71-8P** 167314-72-9P
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(synthesis of fluorescein derivs. with long alkyl chains and characterization of photoelec. responses of their monolayers on
SnO2 coated substrate)

L89 ANSWER 19 OF 28 HCAPLUS COPYRIGHT 2004 ACS on STN
1994:545589 Document No. 121:145589 color filters. Furukawa, Tadahiho; Okamoto, Ryohei (Kyodo Printing Co Ltd, Japan). Jpn. Kokai Tokkyo Koho JP 06059114 A2 19940304 Heisei, 3 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1992-233108 19920808.

AB A color filter comprises a heat-resistant resin containing ≥ 1 xanthene dye, wherein the resin comprises a polyimide or a photosensitive acrylic polymer. The color filter is suited for use in high-definition liquid-crystal display devices.

IT **6441-77-6**, Phloxine
RL: USES (Uses)
(heat-resistant color filters from, for liquid-crystal display devices)

RN 6441-77-6 HCAPLUS
CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one, 2',4',5',7'-tetrabromo-4,7-dichloro-3',6'-dihydroxy-, dipotassium salt (9CI) (CA INDEX NAME)



● 2 K

IC ICM G02B005-20
CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other
Reprographic Processes)
Section cross-reference(s): 73
IT **Dyes**
(xanthene, heat-resistant color filters from, for liquid-crystal
display
devices)
IT **Optical imaging devices**
(electrooptical liquid-crystal, heat-resistant color filters from)
IT 3520-42-1, Acid Rhodamine G 6441-77-6, Phloxine 9002-89-5,
Polyvinyl alcohol
RL: USES (Uses)
(heat-resistant color filters from, for liquid-crystal display
devices)

L89 ANSWER 20 OF 28 HCAPLUS COPYRIGHT 2004 ACS on STN
1994:469651 Document No. 121:69651 Process for thermochemical
generation of
acids for thermal imaging materials. Boggs, Roger A.; Grasshoff,
Jurgen
M.; Mischke, Mark R.; Puttick, Anthony J.; Telfer, Stephen J.; Waller,
David P.; Waterman, Kenneth C. (Polaroid Corp., USA). U.S. US
5278031 A
19940111, 19 pp. (English). CODEN: USXXAM. APPLICATION: US
1992-965172
19921023.
AB Certain squaric acid derivs. are useful for the thermochem.
generation of

acids. The squaric acid derivs. may be used in thermal imaging materials in conjunction with acid-sensitive materials which undergo a color change when contacted by the acids generated from the squaric acid derivs. Preferably, the acid-sensitive materials undergo an irreversible color change, so that the images can be fixed by neutralizing all the acids generated with excess bases, thereby preventing further color change in the images during long term storage.

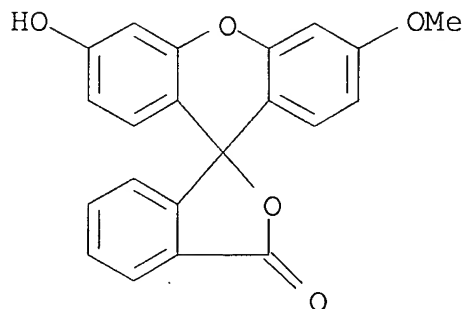
IT 70672-05-8

RL: USES (Uses)

(thermal printing materials containing squaric acid derivs. and)

RN 70672-05-8 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one,
3'-hydroxy-6'-methoxy-
(9CI) (CA INDEX NAME)



IC ICM G03C005-16

NCL 430348000

CC 74-7 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

IT 6674-22-2, 1,8-Diazabicyclo[5.4.0]undec-7-ene 70672-05-8

88878-49-3 104434-48-2 150773-00-5

RL: USES (Uses)

(thermal printing materials containing squaric acid derivs. and)

L89 ANSWER 21 OF 28 HCAPLUS COPYRIGHT 2004 ACS on STN

1993:90972 Document No. 118:90972 Optical imaging and apparatus

therefor. Suzuki, Takayoshi (Kowa Co., Ltd., Japan). Jpn. Kokai Tokkyo

Koho JP 04184209 A2 19920701 Heisei, 9 pp. (Japanese). CODEN: JKXXAF.

APPLICATION: JP 1990-312925 19901120.

AB The title method comprises (1) incidence of a coherent probe light which

has an optical image corresponding to an initial shape of the object and a coherent pumping light coherently into a film containing an organic dye for recording of the optical image from the object as irreversible hologram in the film, and (2) incidence of a probe light having a current image of the object into the film and 2 pumping light having direction of polarization vertical to the probe light into the film from the both sides for generation of 2 phase-conjugate waves, passage thereof through a polarization plate in the direction such that the amplitudes of the waves cancel to each other, and production of optical signals corresponding to a difference between the optical images of the initial and the current shape of the object.

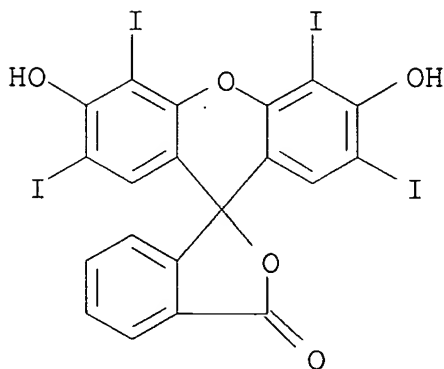
IT 16423-68-0, Erythrosine B

RL: USES (Uses)

(optical **imaging** by holog.-phase conjugate wave generation with film containing)

RN 16423-68-0 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one, 3',6'-dihydroxy-2',4',5',7'-tetraiodo-, disodium salt (9CI) (CA INDEX NAME)



● 2 Na

IC ICM G01B011-16

ICS G01B009-027; G01B011-24; G02F001-35; G03H001-04

CC 74-8 (Radiation Chemistry, Photochemistry, and Photographic and Other

Reprographic Processes)

Section cross-reference(s): 73

ST holog **imaging** org **dye** film; phase conjugate wave
optical **imaging**

IT Holography
(optical **imaging** by phase conjugate wave generation from organic
dye-containing film with)

IT **Dyes**
(organic, films containing, for optical **imaging** by holog.-phase
conjugate wave generation)

IT **Optical imaging devices**
(real time holog.-phase conjugate wave generation, with organic
dye-containing films)

IT **16423-68-0**, Erythrosine B
RL: USES (Uses)
(optical **imaging** by holog.-phase conjugate wave generation
with film containing)

L89 ANSWER 22 OF 28 HCAPLUS COPYRIGHT 2004 ACS on STN

1991:404720 Document No. 115:4720 Enzyme assay method using an enzyme
amplification system. Abuknesha, Ramadan Arabi; Bennetto, Hugh Peter;
Mason, Jeremy Richard; Nugent, Philip Giles; Stirling, John Laing;
Thurston, Christopher Frank (Alcan International Ltd., Can.). Eur.

Pat.
Appl. EP 313274 A1 19890426, 19 pp. DESIGNATED STATES: R: BE, CH,
DE,
ES, FR, GB, IT, LI, NL, SE. (English). CODEN: EPXXDW. APPLICATION:
EP
1988-309624 19881014. PRIORITY: GB 1987-24764 19871022.

AB An immunoassay method involves the use of 1 or preferably 2 enzyme
amplification steps to increase assay speed or sensitivity. In a 1st
step, a 1st enzyme is generated in an amount related to the
concentration of an
analyte in a sample. In a 2nd step, the 1st enzyme acts on a 1st
substrate to reveal antigenic determinants of a 1st product. In a 3rd
step, the 1st product is reacted with an antibody. The extent of this
immune reaction is determined, preferably by means of an enzyme
signal system.

A nonimmunochem. assay system using the above enzyme amplification is
also

described. An ouabain-fetuin conjugate (preparation described) was
immobilized

on microtiter plate wells, to which were added β -galactosidase-
conjugated anti-digoxin IgG. Digoxin was added to the wells, and
after 1

h at 37°, the contents were transferred to plates containing
immobilized bovine serum albumin-coumarin- β -galactoside conjugate.
After 2 h at 37°, alkaline phosphatase-conjugated anti-coumarin IgG
was

added to each well, and after 1.5 h at 37°, the plates were washed and alkaline phosphatase substrate was added. Absorbance was read at 410 nm,

and bound alkaline phosphatase activity was proportional to the digoxin concentration

IT 134240-32-7P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);

RACT

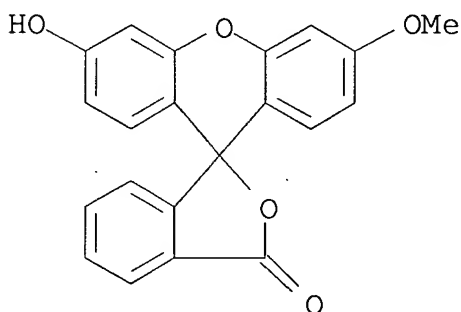
(Reactant or reagent)

(preparation and reaction of, for enzyme amplification enzyme immunoassay)

RN 134240-32-7 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one,
3'-hydroxy-6'-methoxy-

5(or 6)-nitro- (9CI) (CA INDEX NAME)



D1-NO₂

IC ICM G01N033-58

ICS G01N033-543; G01N033-74; G01N033-533

ICA G01N033-94

CC 9-10 (Biochemical Methods)

Section cross-reference(s): 25, 80

IT 134240-32-7P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);

RACT

(Reactant or reagent)

(preparation and reaction of, for enzyme amplification enzyme immunoassay)

L89 ANSWER 23 OF 28 HCAPLUS COPYRIGHT 2004 ACS on STN

1990:517056 Document No. 113:117056 Spectrophotometric determination of ionization and isomerization constants of Rose Bengal, Eosin Y and some

derivatives. Amat-Guerri, F.; Lopez-Gonzalez, M. M. C.; Sastre, R.; Martinez-Utrilla, R. (Inst. Quim. Org., CSIC, Madrid, 28006, Spain).

Dyes

and Pigments, 13(3), 219-32 (English) 1990. CODEN: DYPIDX. ISSN: 0143-7208.

AB The exptl. pK values corresponding to the acid forms of Rose Bengal (I),

Eosin Y (II), their Me esters, their Me ethers, and the decarboxylated compound derived from I, all of them in solution in 1:1 mixts. of dioxane with

aqueous buffers, were determined by applying graphical methods to visible

spectrophotometric data. Assuming the same visible absorption spectra for

mols. with similar chromophoric groups, the isomerization consts. of the

possible equilibrium between lactonic and quinonoid tautomeric structures, and

the pK values of the ionizations of the mol. forms which could be present,

were estimated In the quinonoid mol. forms of I and II, their phenol groups

were ionized first, with estimated pK values of 2.57 and 2.69, resp., while

their carboxylic groups showed much less acidity, and pK values of 5.01

and 6.25.

IT 118584-84-2 127424-66-2

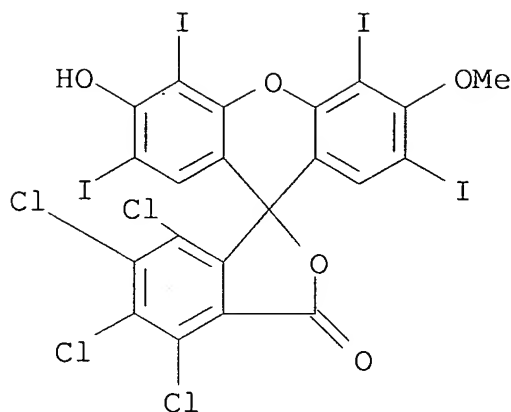
RL: USES (Uses)

(ionization and tautomerization consts. of, determination of, spectrophotometric)

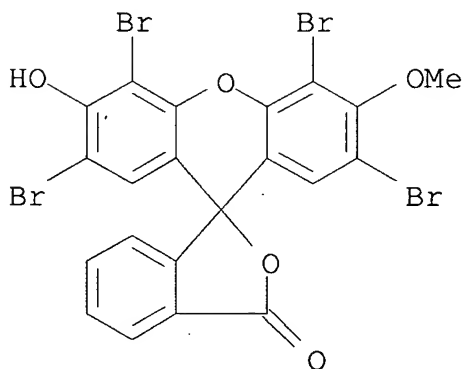
RN 118584-84-2 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one, 4,5,6,7-tetrachloro-3'-

hydroxy-2',4',5',7'-tetraiodo-6'-methoxy- (9CI) (CA INDEX NAME)



RN 127424-66-2 HCAPLUS
CN Spiro[isobenzofuran-1(3H), 9'-[9H]xanthen]-3-one,
2',4',5',7'-tetrabromo-6'-
hydroxy-3'-methoxy- (9CI) (CA INDEX NAME)

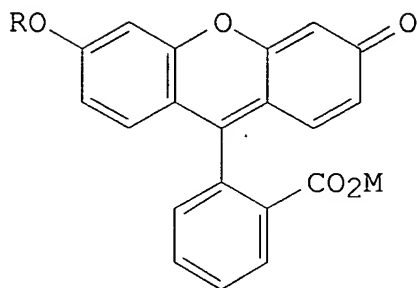


CC 41-8 (Dyes, Organic Pigments, Fluorescent Brighteners, and
Photographic
Sensitizers)
IT 106805-50-9 115546-28-6 118584-84-2 127424-66-2
127424-70-8 127424-71-9 127424-74-2
RL: USES (Uses)
(ionization and tautomerization consts. of, determination of,
spectrophotometric)

L89 ANSWER 24 OF 28 HCAPLUS COPYRIGHT 2004 ACS on STN
1990:45806 Document No. 112:45806 Optical information multiple-recording
materials using fluorescein. Sakota, Kazuaki; Kominami, Kazuhiko;
Iwamoto, Masao (Agency of Industrial Sciences and Technology, Japan).
Jpn. Kokai Tokkyo Koho JP 01152452 A2 19890614 Heisei, 4 pp.
(Japanese).

CODEN: JKXXAF. APPLICATION: JP 1987-309450 19871209.

GI



AB The title recording materials are composed of (1) fluorescein derivs. of

the formula I (M = alkaline metal; R = alkaline metal, alkyl) as a guest component and (2) a polymer as a host component, which can dissolve the guest component; the guest component used may be fluorescein di-Na salt, methoxyfluorescein Na salt, or ethoxyfluorescein Na salt, and the host component may be poly(vinyl alc.). The recording materials, which use the photochem. hole burning (PHB) phenomenon, show excellent heat stability.

Thus, fluorescein di-Na salt was dissolved in aqueous poly(vinyl alc.), then

made into a film having a guest concentration of 10^{-2} mol/L and a thickness of

0.5 mm. The film was cooled to liquid He temperature, and irradiated with a 496.4

nm laser beam to form a PHB hole, and, after elevating the temperature, the film

showed good PHB hole recovery.

IT 124591-82-8 124591-83-9

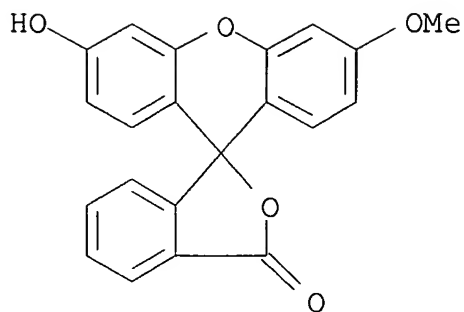
RL: USES (Uses)

(photochem. hole burning optical recording material containing guest

component from, with heat stability)

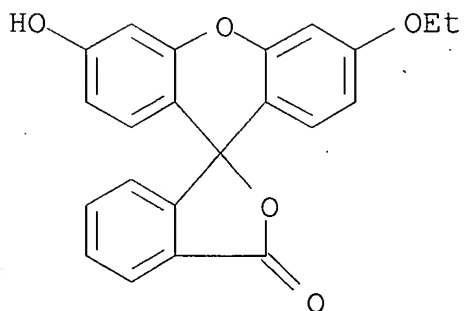
RN 124591-82-8 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one,
3'-hydroxy-6'-methoxy-,
sodium salt (9CI) (CA INDEX NAME)



● Na

RN 124591-83-9 HCAPLUS
CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one,
3'-ethoxy-6'-hydroxy-,
sodium salt (9CI) (CA INDEX NAME)



● Na

IC ICM G03C001-72
ICS G11B007-24
ICA C07D311-80; G06K019-00
CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other
Reprographic Processes)
IT 518-47-8, Fluorescein disodium salt 124591-82-8
124591-83-9
RL: USES (Uses)
(photochem. hole burning optical recording material containing
guest

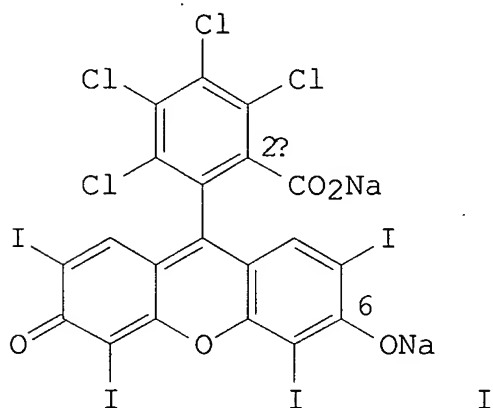
component from, with heat stability)

L89 ANSWER 25 OF 28 HCAPLUS COPYRIGHT 2004 ACS on STN
1989:57461 Document No. 110:57461 General synthesis of new Rose Bengal
derivatives with ether functional groups. Xu, Danian; Vanloon,
Adriaan;

Linden, Shwn Meei; Neckers, D. C. (Cent. Photochem. Sci., Bowling
Green

State Univ., Bowling Green, OH, 43403, USA). Journal of
Photochemistry,

38, 357-63 (English) 1987. CODEN: JPCMAE. ISSN: 0047-2670.
GI



AB Functionalization at the C-2' and C-6 positions of benzopyran I was
described. Derivs. obtained included the C-2' ester, C-6 ether, C-6
Na

salt, and the C-2' Na salt/C-6 ether.

IT 118584-84-2P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);
RACT

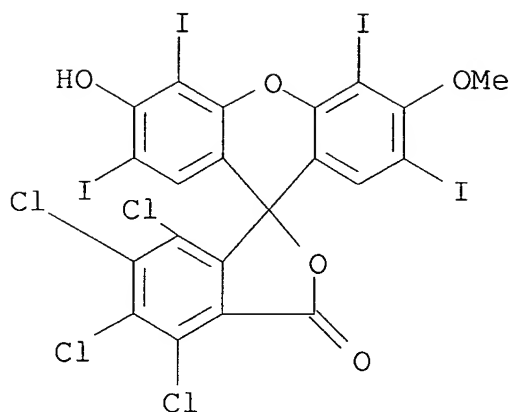
(Reactant or reagent)

(preparation and reactions of)

RN 118584-84-2 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one,
4,5,6,7-tetrachloro-3'-

hydroxy-2',4',5',7'-tetraiodo-6'-methoxy- (9CI) (CA INDEX NAME)



CC 27-14 (Heterocyclic Compounds (One Hetero Atom))
Section cross-reference(s): 41

IT **118584-84-2P**

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);
RACT
(Reactant or reagent)
(preparation and reactions of)

L89 ANSWER 26 OF 28 HCAPLUS COPYRIGHT 2004 ACS on STN

1986:456924 Document No. 105:56924 Characterization of ouabain-sensitive
phosphatase activity in the absence of potassium ion in purified pig
kidney sodium-potassium ATPase. Nagamune, Hideaki; Urayama, Osamu;

Hara,

Yukichi; Nakao, Makoto (Sch. Med., Tokyo Med. Dent. Univ., Tokyo, 113,
Japan). Journal of Biochemistry (Tokyo, Japan), 99(6), 1613-24

(English)

1986. CODEN: JOBIAO. ISSN: 0021-924X.

AB The ouabain-sensitive phosphatase activity of purified pig kidney
Na,K-ATPase preparation in the absence of K⁺ ((-K)phosphatase) was
examined

precisely. During the preparation procedures, the (-K)3-O-
methylfluoresceinphosphatase [(-K)3-OMFPase] activity or the
(-K)p-nitrophenylphosphatase [(-K)pNPPase] activity appeared to be
purified in parallel with the Na,K-ATPase activity. The

(-K)phosphatase

activity was competitively inhibited by ATP and by ADP, with K_i values
of

0.25 and 1.4 μM, resp. These values are consistent with their
dissociation

constants for the high-affinity ATP-binding site of the Na,K-ATPase.

The

substrate, pNPP, apparently competed with covalently bound FITC,
which is

known to bind in the neighborhood of the high-affinity ATP-binding site of the Na,K-ATPase, in both the (-K)phosphatase and the (+K)phosphatase reactions. The FITC-fluorescence intensity of FITC-labeled enzyme at the maximal steady-state activity of the (-K)phosphatase reaction was at a similar level to that of the enzyme E2 species. However, the FITC-labeled enzyme in the presence of only Mg²⁺ or only pNPP gave a fluorescence level similar to that of the enzyme E1 species. Oligomycin inhibited the (-K)phosphatase activity by ≤46%. Apparently the (-K)phosphatase reaction is catalyzed at the high-affinity ATP-binding site of Na,K-ATPase, and the (-K)phosphatase reaction proceeds in a cyclic manner

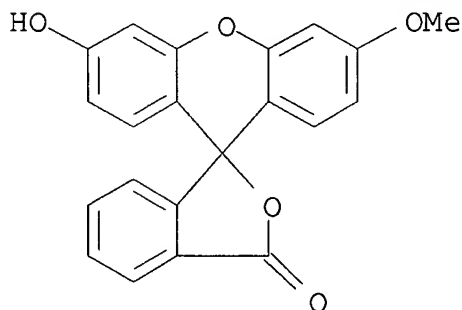
(E1→E2→E1).

IT 70672-05-8

RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with ouabain-sensitive phosphatase of kidney ATPase, kinetics of)

RN 70672-05-8 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one,
3'-hydroxy-6'-methoxy-
(9CI) (CA INDEX NAME)



CC 7-4 (Enzymes)

IT 70672-05-8

RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with ouabain-sensitive phosphatase of kidney ATPase, kinetics of)

L89 ANSWER 27 OF 28 HCAPLUS COPYRIGHT 2004 ACS on STN

1985:42494 Document No. 102:42494 Methods and structures employing non-radioactive chemically-labeled polynucleotide probes. Stavrianopoulos, Jannis G.; Kirtikar, Dollie; Johnston, Kenneth H.; Thalenfeld, Barbara E. (Enzo Bio Chem, Inc., USA). Eur. Pat. Appl. EP

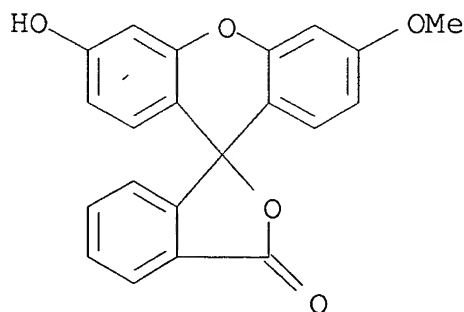
117440 A1 19840905, 76 pp. DESIGNATED STATES: R: AT, BE, CH, DE, FR, GB, IT, LI, LU, NL, SE. (English). CODEN: EPXXDW. APPLICATION: EP 1984-100836 19840126. PRIORITY: US 1983-461469 19830127.

AB The title probes, such as single-stranded DNA probes containing ≥ 25 bases, contain especially enzyme labels and are used for the detection and identification of complementary single-stranded DNA (fixed on an inert support) by hybridization, followed by spectrophotometric determination of the enzyme in the double-stranded hybrids formed. These probes can replace hazardous, expensive, short-lived radiolabeled probes, and ELISA also can be used to determine the formed hybrid. The support may be glass, polystyrene, nitrocellulose, dextran, etc. Recommended enzyme labels and some substrates are tabulated. The method is useful for detecting the presence of pathogens (e.g., Streptococcus, Staphylococcus, Pneumococcus, etc.) in clin. samples by detection of their genetic material.

IT 70672-05-8
RL: ANST (Analytical study)
(as acid phosphatase substrate, in DNA hybridization tests)

RN 70672-05-8 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one,
3'-hydroxy-6'-methoxy-
(9CI) (CA INDEX NAME)



IC C07H021-00; G01N033-58

CC 9-5 (Biochemical Methods)
Section cross-reference(s): 15

IT 4264-83-9 23915-89-1 51379-07-8 70672-05-8
RL: ANST (Analytical study)
(as acid phosphatase substrate, in DNA hybridization tests)

L89 ANSWER 28 OF 28 HCAPLUS COPYRIGHT 2004 ACS on STN

1982:3192 Document No. 96:3192 Preparation and spectral properties of lipophilic fluorescein derivatives: application to plasma low-density lipoprotein. Falck, J. R.; Krieger, Monty; Goldstein, J. L.; Brown,

M. S.

(Health Sci. Cent., Univ. Texas, Dallas, TX, 75235, USA). Journal of the

American Chemical Society, 103(24), 7396-8 (English) 1981. CODEN: JACSAT.

ISSN: 0002-7863.

AB The preparation of several fluorescein derivs., specifically designed for

reconstitution into low-d. lipoprotein (LDL), and esterified with cholesteryl ricinoleate is described. Their spectral properties are compared with fluorescein. The esters are .apprx.40-50-fold more fluorescent than the corresponding acids and fluorescein in 5%

HOAc/ETOH.

As a consequence of their unique structure and fluorescence characteristics, these probes are valuable tools in the study of LDL and

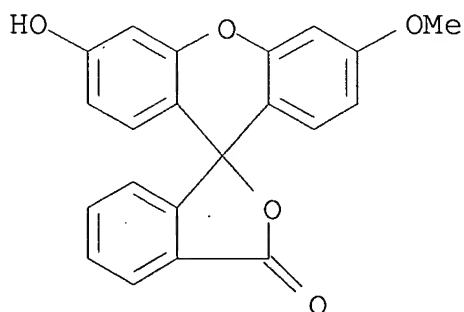
cholesterol metabolism

IT 70672-05-8

RL: RCT (Reactant); RACT (Reactant or reagent)
(esterification of, with cholesteryl ricinoleate)

RN 70672-05-8 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one,
3'-hydroxy-6'-methoxy-
(9CI) (CA INDEX NAME)



CC 9-5 (Biochemical Methods)

IT 3348-03-6 70672-05-8 79955-27-4

RL: RCT (Reactant); RACT (Reactant or reagent)
(esterification of, with cholesteryl ricinoleate)

=> => d 183 1-21 cbib abs hitstr hitind

L83 ANSWER 1 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN

2004:207656 Document No. 140:392329 Synthesis and characterization of zinc

sensors based on a monosubstituted fluorescein platform. Nolan, Elizabeth

M.; Burdette, Shawn C.; Harvey, Jessica H.; Hilderbrand, Scott A.; Lippard, Stephen J. (Department of Chemistry, Massachusetts Institute of

Technology, Cambridge, MA, 02139, USA). Inorganic Chemistry, 43(8), 2624-2635 (English) 2004. CODEN: INOCAJ. ISSN: 0020-1669.

Publisher:

American Chemical Society.

AB The synthesis of a new fluorescein carboxaldehyde asym. substituted on the

xanthene (top) ring is reported. This mol. is a key precursor for two of

three monofunctionally derivatized fluorescein-based Zn(II) sensors presented in this work. Detailed preparative routes to, and photophys.

characterization of, these sensors are described. The sensors are based

on the previously reported ZP4 motif by the authors (2003) and incorporate

a di(2-picolyl)amine-containing aniline-derivatized ligand framework.

By varying the nature of the substituent para to the aniline nitrogen atom,

which is responsible for photoinduced electron transfer quenching the unbound ZP **dye**, we investigated the extent to which such electronic tuning might improve the fluorescent properties of asym. ZP sensors. Although a comparison of probes with X = H, F, Cl, OMe reveals

that the photophys. behavior of these **dyes** is not readily predictable, our methodol. illustrates the ease with which aniline-based-

ligands may be linked to fluorescein **dyes**.

IT 389625-48-3

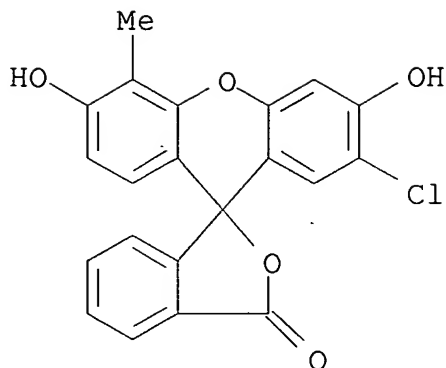
RL: RCT (Reactant); RACT (Reactant or reagent)

(preparation of zinc sensors based on monosubstituted fluorescein platform)

RN 389625-48-3 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one, 2'-chloro-3',6'-dihydroxy-

5'-methyl- (9CI) (CA INDEX NAME)



CC 41-5 (Dyes, Organic Pigments, Fluorescent Brighteners, and Photographic Sensitizers)
Section cross-reference(s): 9, 27, 73, 80
ST zinc sensor fluorescein **dye** deriv prepn
IT 389625-41-6P 502467-23-4P 686767-89-5P 686767-90-8P
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(**dye**; preparation of zinc sensors based on monosubstituted fluorescein platform)
IT 77-48-5, 1,3-Dibromo-5,5-dimethylhydantoin 446-33-3,
5-Fluoro-2-nitrotoluene 1539-42-0, Bis(2-picolyl)amine
389625-48-3 389625-50-7
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of zinc sensors based on monosubstituted fluorescein platform)

L83 ANSWER 2 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN
2003:221905 Document No. 138:256581 Fluorescent **dyes** and their production for fluorescent labeling of biomolecules. Lukhtanov, Eugeny
A.; Vorobiev, Alexei V.; Reed, Michael W.; Vermeulen, Nicolaas M. J. (Epoch Biosciences, Inc., USA). PCT Int. Appl. WO 2003023357 A2 20030320,
103 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM;
RW:

AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB,
GR,
IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English).
CODEN: PIXXD2. APPLICATION: WO 2002-US28543 20020906. PRIORITY: US
2001-PV317875 20010907; US 2001-26374 20011221.

AB Xanthene, benzoxanthene, phenothiazine, benzophenothiazine, and
coumarin

lactone **dye** reagents useful in labeling biol. materials are
provided along with methods for their use. The **dyes** are
suitable for multiple detection processes and may be readily
converted to
reactive yet stable labeling reagents. In example,
8,12,23,24-tetrachloro-
9-hydroxy-10-methylspiro[3,4-dihydro-2H-pyrano[3,2-b]xanthene-6,3'-3-
hydroisobenzofuran]-2,19-dione was prepared and condensed with
6-aminohexanol and 2-cyanoethyl N,N-diisopropylchlorophosphoramidite
to
give a fluorescent labeling reagent.

IT 502484-48-2P 502484-52-8P

RL: IMF (Industrial manufacture); TEM (Technical or engineered
material

use); PREP (Preparation); USES (Uses)

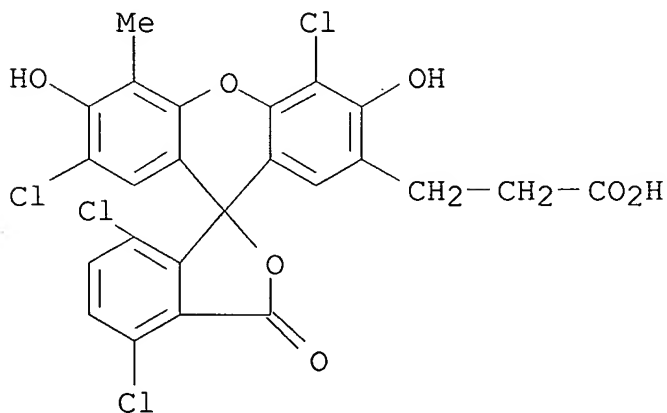
(**dye**; production of fluorescent **dyes** for fluorescent
labeling of biomols.)

RN 502484-48-2 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthene]-2'-propanoic acid,
4,4',7,7'-tetrachloro-3',6'-dihydroxy-5'-methyl-3-oxo- (9CI) (CA

INDEX

NAME)

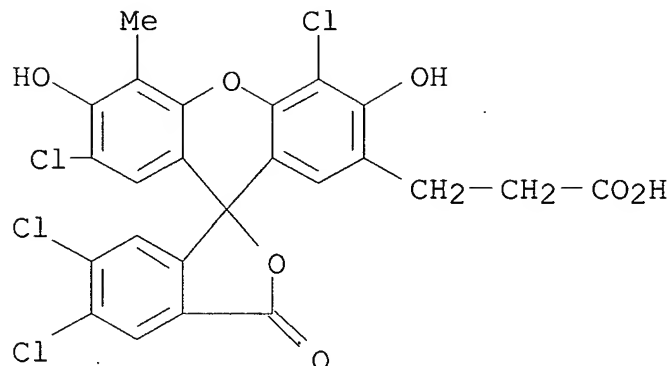


RN 502484-52-8 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthene]-2'-propanoic acid,
4',5,6,7'-tetrachloro-3',6'-dihydroxy-5'-methyl-3-oxo- (9CI) (CA

INDEX

NAME)



IT 502485-30-5P 502485-35-0P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation);

RACT

(Reactant or reagent)

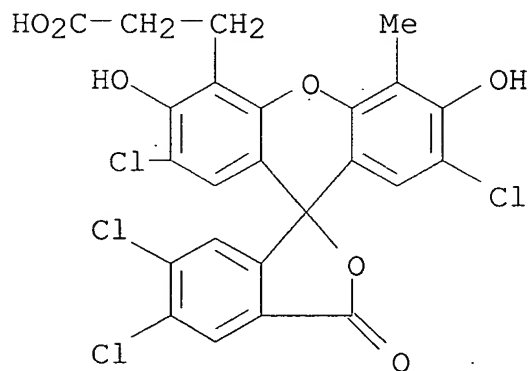
(intermediate; production of fluorescent **dyes** for fluorescent labeling of biomols.)

RN 502485-30-5 HCAPLUS

CN Spiro[isobenzofuran-1(3H), 9'-[9H]xanthene]-4'-propanoic acid, 2',5,6,7'-tetrachloro-3',6'-dihydroxy-5'-methyl-3-oxo- (9CI) (CA

INDEX

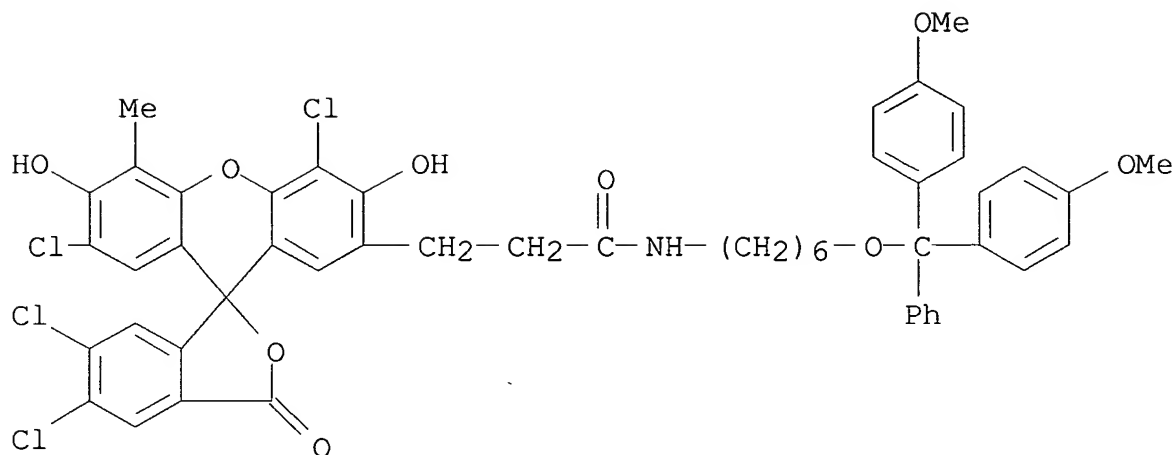
NAME)



RN 502485-35-0 HCAPLUS

CN Spiro[isobenzofuran-1(3H), 9'-[9H]xanthene]-2'-propanamide,

N-[6-[bis(4-methoxyphenyl)phenylmethoxy]hexyl]-4',5,6,7'-tetrachloro-3',6'-dihydroxy-5'-methyl-3-oxo- (9CI) (CA INDEX NAME)



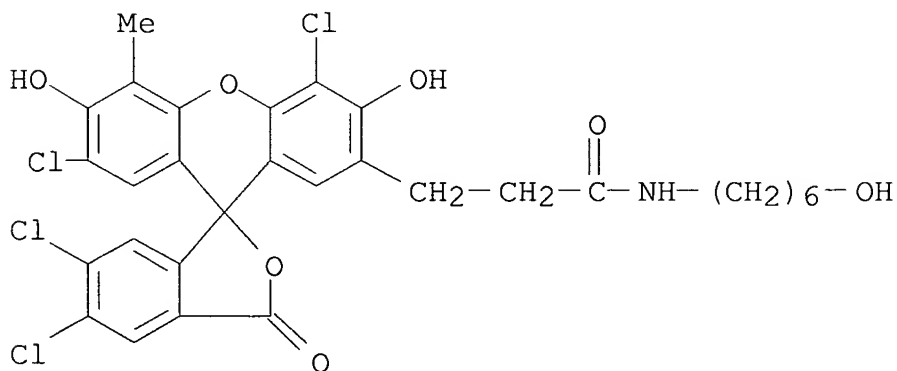
IT 502485-33-8

RL: RCT (Reactant); RACT (Reactant or reagent)
(starting material; production of fluorescent **dyes** for
fluorescent labeling of biomols.)

RN 502485-33-8 HCAPLUS

CN Spiro[isobenzofuran-1(3H), 9'-[9H]xanthene]-2'-propanamide,

4',5,6,7'-tetrachloro-3',6'-dihydroxy-N-(6-hydroxyhexyl)-5'-methyl-3-oxo-
(9CI) (CA INDEX NAME)



IC ICM G01N

CC 41-5 (Dyes, Organic Pigments, Fluorescent Brighteners, and
Photographic
Sensitizers)

Section cross-reference(s): 9, 27, 28

ST fluorescent **dye** prodn labeling biomol

IT Fluorescent **dyes**

Fluorescent indicators

(production of fluorescent **dyes** for fluorescent labeling of biomols.)

IT 502484-45-9P 502484-46-0P 502484-47-1P 502484-59-5P
502484-67-5P

RL: IMF (Industrial manufacture); RCT (Reactant); TEM (Technical or engineered material use); PREP (Preparation); RACT (Reactant or reagent);

USES (Uses)

(**dye**; production of fluorescent **dyes** for fluorescent labeling of biomols.)

IT 502484-05-1P 502484-06-2P 502484-38-0P 502484-39-1P
502484-40-4P

502484-41-5P 502484-42-6P 502484-43-7P 502484-44-8P

502484-48-2P 502484-49-3P 502484-50-6P 502484-51-7P

502484-52-8P 502484-53-9P 502484-54-0P 502484-60-8P

502484-61-9P 502484-62-0P 502484-63-1P 502484-64-2P

502484-65-3P

502484-69-7P 502484-76-6P 502484-78-8P 502484-82-4P

502484-86-8P

502484-88-0P 502484-90-4P 502484-92-6P 502484-94-8P

502484-96-0P

502484-98-2P 502485-00-9P 502485-02-1P 502485-04-3P

502485-06-5P

502485-08-7P 502485-18-9P 502485-20-3P 502485-32-7P

502485-39-4P

RL: IMF (Industrial manufacture); TEM (Technical or engineered material

use); PREP (Preparation); USES (Uses)

(**dye**; production of fluorescent **dyes** for fluorescent labeling of biomols.)

IT 502483-92-3P 502483-93-4P 502483-94-5P 502483-95-6P
502483-96-7P

502483-97-8P 502483-98-9P 502483-99-0P 502484-00-6P

502484-01-7P

502484-02-8P 502484-03-9P 502484-04-0P 502484-07-3P

502484-08-4P

502484-09-5P 502484-10-8P 502484-11-9P 502484-12-0P

502484-13-1P

502484-14-2P 502484-15-3P 502484-16-4P 502484-17-5P

502484-18-6P

502484-19-7P 502484-20-0P 502484-21-1P 502484-22-2P

502484-23-3P

502484-24-4P 502484-25-5P 502484-26-6P 502484-27-7P

502484-29-9P

502484-30-2P 502484-31-3P 502484-32-4P 502484-33-5P

502484-34-6P

502484-35-7P 502484-36-8P 502484-37-9P 502484-71-1P

502484-73-3P

502484-80-2P 502485-12-3P 502485-14-5P 502485-16-7P
502485-24-7P
502485-26-9P 502485-30-5P 502485-35-0P 502485-37-2P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation);
RACT
(Reactant or reagent)
(intermediate; production of fluorescent **dyes** for fluorescent
labeling of biomols.)
IT 502484-55-1P 502484-56-2P 502484-57-3P 502484-58-4P
RL: IMF (Industrial manufacture); TEM (Technical or engineered
material
use); PREP (Preparation); USES (Uses)
(intermediate; production of fluorescent **dyes** for fluorescent
labeling of biomols.)
IT 67-56-1, Methanol, reactions 95-88-5, 4-Chlororesorcinol 117-08-8,
Tetrachlorophthalic anhydride 128-09-6, N-Chlorosuccinimide
132-86-5,
1,3-Dihydroxynaphthalene 141-82-2, Malonic acid, reactions
575-44-0,
1,6-Dihydroxynaphthalene 674-82-8, Diketene 698-31-7,
4-Nitrosoresorcinol 942-06-3, 4,5-Dichlorophthalic anhydride
1538-75-6, Trimethylacetic anhydride 4048-33-3, 6-Aminohexanol
17422-90-1 72482-14-5 89992-70-1, 2-Cyanoethyl N,N-
diisopropylchlorophosphoramidite 502483-90-1 502483-91-2
502484-84-6
502485-10-1 502485-22-5 502485-28-1 502485-33-8
RL: RCT (Reactant); RACT (Reactant or reagent)
(starting material; production of fluorescent **dyes** for
fluorescent labeling of biomols.)

L83 ANSWER 3 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN
2003:4189 Document No. 138:353859 Solvent-free synthesis of
sulfonephthaleins, sulfonefluoresceins and fluoresceins under
microwave
irradiation. Cihelnik, Simon; Stibor, Ivan; Lhotak, Pavel
(Department of
Organic Chemistry, Institute of Chemical Technology, Prague, Prague,
166
28, Czech Rep.). Collection of Czechoslovak Chemical Communications,
67(12), 1779-1789 (English) 2002. CODEN: CCCCAK. ISSN: 0010-0765.
OTHER
SOURCES: CASREACT 138:353859. Publisher: Institute of Organic
Chemistry
and Biochemistry, Academy of Sciences of the Czech Republic.
AB The title compds. are prepared from phenols and 2-sulfobenzoic
anhydride or
phthalic anhydride under microwave irradiation
IT 118797-71-0P

RL: SPN (Synthetic preparation); PREP (Preparation)
(solvent-free synthesis of sulfonephthaleins, sulfonefluoresceins

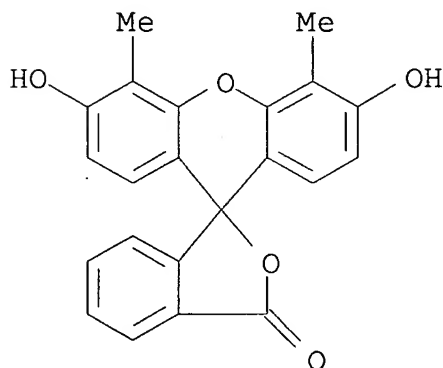
and
fluoresceins from phenols and 2-sulfobenzoic anhydride or phthalic
anhydride under microwave irradiation)

RN 118797-71-0 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one,

3',6'-dihydroxy-4',5'-

dimethyl- (9CI) (CA INDEX NAME)



CC 28-5 (Heterocyclic Compounds (More Than One Hetero Atom))

IT **Dyes**

(solvent-free synthesis of sulfonephthaleins, sulfonefluoresceins

and
fluoresceins from phenols and 2-sulfobenzoic anhydride or phthalic
anhydride under microwave irradiation)

IT 115-41-3P, Pyrocatechol violet 125-31-5P, p-Xylenol blue

143-74-8P,

Phenol red 1733-12-6P, o-Cresol red 2103-64-2P, Gallein

2303-01-7P,

m-Cresol purple 2321-07-5P, Fluorescein 4424-03-7P,

Sulfonefluorescein

32638-88-3P, Pyrogallol red 78512-32-0P **118797-71-0P**

122079-34-9P 216771-46-9P 518979-55-0P,

2,6-Xylenolsulfonephthalein

518979-56-1P, Methylsulfonefluorescein 518979-57-2P 590409-46-4P

RL: SPN (Synthetic preparation); PREP (Preparation)

(solvent-free synthesis of sulfonephthaleins, sulfonefluoresceins

and
fluoresceins from phenols and 2-sulfobenzoic anhydride or phthalic
anhydride under microwave irradiation)

L83 ANSWER 4 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN

2002:51568 Document No. 136:103838 Fluorescein-based metal sensors and
their

use. Lippard, Stephen J.; Burdette, Shawn; Hilderbrand, Scott; Tsien, Roger; Walkup, Grant (Massachusetts Institute of Technology, USA).

PCT Int. Appl. WO 2002004562 A2 20020117, 98 pp. DESIGNATED STATES: W:
AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR,
CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID,
IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL,
TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ,
MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES,
FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG,
TR.

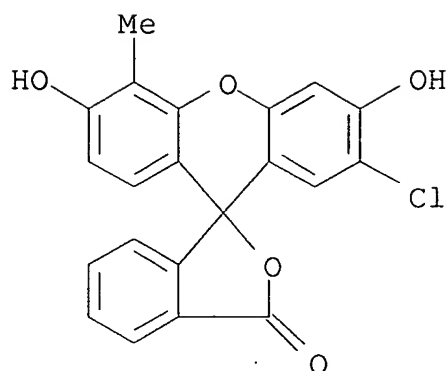
(English). CODEN: PIXXD2. APPLICATION: WO 2001-US41313 20010709.
PRIORITY: US 2000-PV216872 20000707; US 2000-PV216875 20000707; US
2001-PV284384 20010417.

AB Fluorescein-based ligands are obtained for the detection of metal
ions, such as zinc in intracellular media. In an example, an orange dye
was produced by reductive amination of
4',5'-fluoresceindicarboxaldehyde
with bis(2-pyridylmethyl)amine and shown to have a Zn-selective
fluorescence response.

IT **389625-48-3**
RL: RCT (Reactant); RACT (Reactant or reagent)
(starting material; preparation and crystal structure of
fluorescein-based
ligand-zinc complex)

RN 389625-48-3 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one,
2'-chloro-3',6'-dihydroxy-
5'-methyl- (9CI) (CA INDEX NAME)



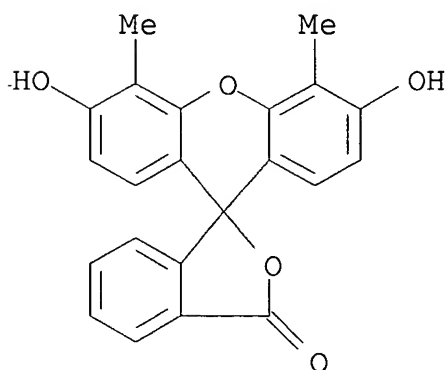
IT 118797-71-0

RL: RCT (Reactant); RACT (Reactant or reagent)

(starting material; production of fluorescein-based metal sensors selective for zinc)

RN 118797-71-0 HCAPLUS

CN Spiro[isobenzofuran-1(3H), 9'-[9H]xanthen]-3-one, 3',6'-dihydroxy-4',5'-dimethyl- (9CI) (CA INDEX NAME)



IC ICM C09B011-08

ICS G01N033-533; G01N033-58

CC 41-11 (Dyes, Organic Pigments, Fluorescent Brighteners, and Photographic Sensitizers)

Section cross-reference(s): 9, 27, 78, 79, 80

ST fluorescein based dye prodn zinc fluorescent sensor intracellular

IT 389625-18-7P

RL: IMF (Industrial manufacture); TEM (Technical or engineered material)

use); PREP (Preparation); USES (Uses)
(**dye**; production of fluorescein-based metal sensors selective for zinc)

IT 357916-12-2P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material)
use); PREP (Preparation); USES (Uses)
(orange **dye**; production of fluorescein-based metal sensors and their use)

IT 389625-25-6P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material)
use); PREP (Preparation); USES (Uses)
(orange **dye**; production of fluorescein-based metal sensors selective for zinc)

IT 288574-78-7P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material)
use); PREP (Preparation); USES (Uses)
(salmon pink **dye**; production of fluorescein-based metal sensors selective for zinc)

IT 1333-74-0, Hydrogen, reactions 5367-32-8, 3-Methyl-4-nitroanisole
389625-48-3
RL: RCT (Reactant); RACT (Reactant or reagent)
(starting material; preparation and crystal structure of fluorescein-based ligand-zinc complex)

IT 62-53-3, Aniline, reactions 127-08-2, Potassium acetate 127-09-3, Sodium acetate 699-83-2 2321-07-5, Fluorescein 2491-18-1, L-Methionine methyl ester hydrochloride 2706-56-1, 2-(2-Aminoethyl)pyridine 6201-65-6, 2-Chlororesorcinol 7335-65-1, Hydrazine acetate 7761-88-8, Silver nitrate, reactions 13154-24-0, Triisopropylsilyl chloride 18162-48-6, tert-Butyldimethylsilyl chloride 30525-89-4, Paraformaldehyde 58479-61-1, tert-Butyldiphenylsilyl chloride 65840-40-6, Potassium levulinate **118797-71-0** 389625-23-4 389625-31-4
RL: RCT (Reactant); RACT (Reactant or reagent)
(starting material; production of fluorescein-based metal sensors selective for zinc)

IT 389625-47-2P
RL: IMF (Industrial manufacture); PREP (Preparation)
(yellow **dye**; preparation and crystal structure of fluorescein-based ligand-zinc complex)

IT 389625-19-8P 389625-26-7P 389625-27-8P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material)

use); PREP (Preparation); USES (Uses)
(yellow **dye**; production of fluorescein-based metal sensors
selective for zinc)

L83 ANSWER 5 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN
1995:790946 Document No. 123:301216 Sensitivity enhancement of
fluorescent

pH indicators using pH-dependent energy transfer. Gabor, Gabriella;
Chadha, Suneet; Walt, David R. (Max Tishler Laboratory for Organic
Chemistry, Department of Chemistry, Tufts University, 62 Talbot Ave.,
Medford, MA, 02155, USA). Analytica Chimica Acta, 313(1-2), 131-7
(English) 1995. CODEN: ACACAM. ISSN: 0003-2670. Publisher:

Elsevier.

AB The concept of energy transfer is examined, in view of its
application to

enhance pH sensitivity of fluorescent **dyes**. Two fluorescent pH
sensitive indicators are chosen such that they have nearly the same

pKa
values and have maximum spectral overlap between the emission
spectrum of the
donor and the excitation spectrum of the acceptor. In this work we
studied the pH dependent energy transfer between 7-hydroxy-4-
methylcoumarin-3-acetic acid (HCA) as the donor with fluorescein and
5-(and 6-)carboxy-4',5'-dimethyl fluorescein (CDF) as the acceptors.

The
extent of energy transfer was measured exptl. by following the
increase in
acceptor emission at different pH values. The sensitivity of the
acceptor
dye is almost double when excited via energy transfer, provided
the donor emission itself exhibits a similar dependence on pH. The pH
sensitivity of fluorescein ($\Delta I/\Delta pH$), was observed to increase
from 0.28 when excited directly, to 0.71 when excited via energy
transfer.

CDF also shows a similar increase from 0.49 to 0.71.

IT 100111-02-2, 5-Carboxy-4',5'-dimethyl fluorescein

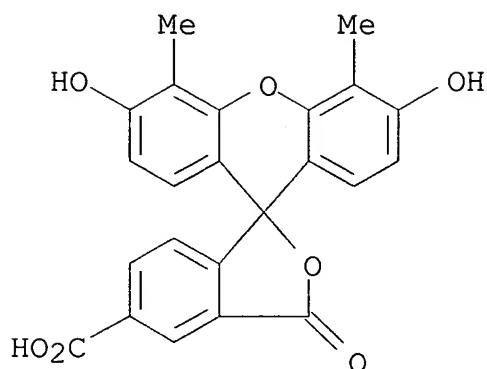
100111-03-3, 6-Carboxy-4',5'-dimethyl fluorescein

RL: PEP (Physical, engineering or chemical process); PRP (Properties);
PROC (Process)

(sensitivity enhancement of fluorescent pH indicators using
pH-dependent energy transfer)

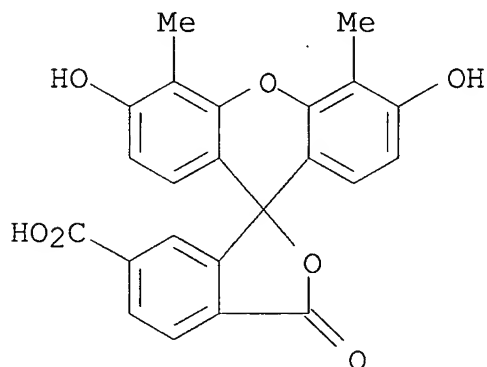
RN 100111-02-2 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthene]-5-carboxylic acid,
3',6'-dihydroxy-4',5'-dimethyl-3-oxo- (9CI) (CA INDEX NAME)



RN 100111-03-3 HCAPLUS

CN Spiro[isobenzofuran-1(3H), 9'-[9H]xanthene]-6-carboxylic acid,
3',6'-dihydroxy-4',5'-dimethyl-3-oxo- (9CI) (CA INDEX NAME)



CC 74-1 (Radiation Chemistry, Photochemistry, and Photographic and Other
Reprographic Processes)

Section cross-reference(s): 73, 79, 80

ST fluorescent dye pH indicator energy transfer

IT **Dyes**

Indicators

(fluorescent, sensitivity enhancement of fluorescent pH indicators
using pH-dependent energy transfer)

IT 2321-07-5, Fluorescein 2747-05-9, 7-Hydroxy-4-methylcoumarin acetate

100111-02-2, 5-Carboxy-4',5'-dimethyl fluorescein

100111-03-3, 6-Carboxy-4',5'-dimethyl fluorescein

RL: PEP (Physical, engineering or chemical process); PRP (Properties);
PROC (Process)

(sensitivity enhancement of fluorescent pH indicators using
pH-dependent energy transfer)

L83 ANSWER 6 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN

1995:199694 Document No. 122:4777 Free concentrations of intracellular fluorescent anions determined by cytoplasmic dialysis of isolated hepatocytes. Weinman, Steven A.; Maglova, Lilia M. (Dep. Internal Med.,

Univ. Texas Med. Branch, Galveston, TX, 77555-0641, USA). American Journal of Physiology, 267(5, Pt. 1), G922-G931 (English) 1994.

CODEN:

AJPHAP. ISSN: 0002-9513. Publisher: American Physiological Society.

AB Intracellular organic ions exist in free solution bound to cytoplasmic proteins,

partitioned within intracellular membranes, and enclosed in intracellular

vesicles and organelles. The aim of this study was to develop a method

for measurement of the free cytosolic concentration of organic ions.

This was

accomplished by measuring initial rates of diffusion between

patch-clamp

pipets and cell cytoplasm and determining the null-point

concentration of this process.

Carboxydimethylfluorescein (CF) was used as a model compound It readily

diffused between cytoplasm and pipet, and there was a linear relationship

between concentration in the pipet and equilibrium cell fluorescence.

When cells

previously loaded with CF were patched, intracellular fluorescence rapidly

changed in a pos. or a neg. direction, depending on the concentration of CF in

the pipet. The null point, defined as the concentration at which cells neither

gained nor lost fluorescence, described the same relationship between free

concentration and total cell fluorescence as that determined by direct loading of the

cells to equilibrium In hepatocytes preloaded with a fluorescent bile acid

derivative, cholyglycylamidofluorescein (CGamF), by exposure (0.05 μ M) for

30 min, the null point occurred at a CGamF concentration in the pipet of 0.6

μ M. This value is 12 times greater than that in the bath. A new

method is described that can measure free cytosolic concns. of fluorescent

mols. It should prove useful in determining the intracellular location and

state of transported organic ions.

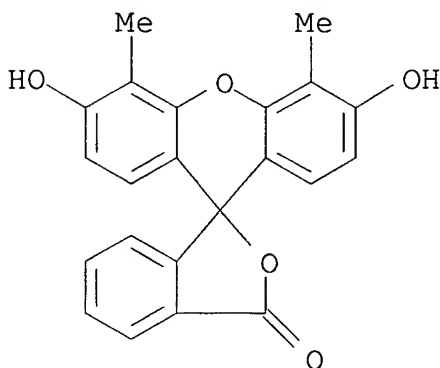
IT 103991-76-0

RL: ANT (Analyte); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process)

(intracellular fluorescent anions determination by cytoplasmic dialysis of hepatocytes)

RN 103991-76-0 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthene]-ar-carboxylic acid, 3',6'-dihydroxy-4',5'-dimethyl-3-oxo- (9CI) (CA INDEX NAME)



D1-CO₂H

CC 9-9 (Biochemical Methods)

IT **Dyes**

(fluorescent, intracellular fluorescent anions determination by cytoplasmic dialysis of hepatocytes)

IT 475-31-0, Glycocholic acid 863-57-0D, reaction products with FITC 27072-45-3D, reaction products with sodium glycocholate 103991-76-0

RL: ANT (Analyte); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process)

(intracellular fluorescent anions determination by cytoplasmic dialysis of hepatocytes)

L83 ANSWER 7 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN

1993:444488 Document No. 119:44488 Correction of absorption spectra of a pH-sensitive dye for intracellular pH estimation in smooth

muscle. Matsumoto, T.; Tomita, T. (Sch. Med., Nagoya Univ., Nagoya, 466, Japan). Japanese Journal of Physiology, 43(1), 103-9 (English) 1993. CODEN: JJPHAM. ISSN: 0021-521X.

AB Methods of correction for intracellular pH (pHi) estimation from the absorbance of the pH-sensitive **dye**, 4',5'-dimethyl-5-(and -6-)carboxy-fluorescein (Me2CF), were described. In the guinea pig vena

cava, a reasonable estimation of pHi changes was obtained when the distortion of the spectrum was corrected using the tissue absorbance at wavelengths longer than 570 nm.

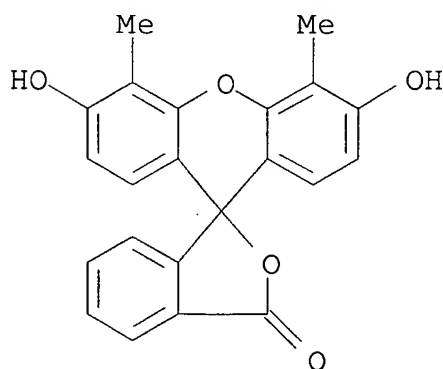
IT 103991-76-0

RL: ANST (Analytical study)

(in intracellular pH estimation in smooth muscle)

RN 103991-76-0 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9']-[9H]xanthene]-ar-carboxylic acid, 3',6'-dihydroxy-4',5'-dimethyl-3-oxo- (9CI) (CA INDEX NAME)



D1-CO₂H

CC 9-5 (Biochemical Methods)

IT pH

(estimation of intracellular, in smooth muscle by spectrometry, pH-sensitive **dye** in)

IT Muscle

(smooth, pH estimation in, by spectrometry pH-sensitive **dye** in)

IT 103991-76-0

RL: ANST (Analytical study)

(in intracellular pH estimation in smooth muscle)

IT 12408-02-5

RL: ANST (Analytical study)

(pH, estimation of intracellular, in smooth muscle by spectrometry,
pH-sensitive **dye** in)

L83 ANSWER 8 OF 21 HCAPLUS . COPYRIGHT 2004 ACS on STN

1989:487152 Document No. 111:87152 Photosensitized reduction of benzil
by

heteroatom-containing anthracene **dyes**. Shen, Tao; Zhao,
Zhangong; Yu, Qun; Xu, Huijun (Inst. Photogr. Chem., Acad. Sin.,

Beijing,

Peop. Rep. China). Journal of Photochemistry and Photobiology, A:
Chemistry, 47(2), 203-12 (English) 1989. CODEN: JPPCEJ. ISSN:

1010-6030.

AB Benzil in MeOH was quant. reduced to benzoin by triethylamine in the
presence of some heteroatom-containing anthracene **dyes** under visible
irradiation. The thermodyn., kinetics, and various quantum yields were
investigated. The transient intermediate of the reaction was
detected by

flash photolysis. The relation between the photosensitized reduction
and the

fading of the **dyes** was studied. The requirements for the
dyes and the mechanism of these reactions were clarified.

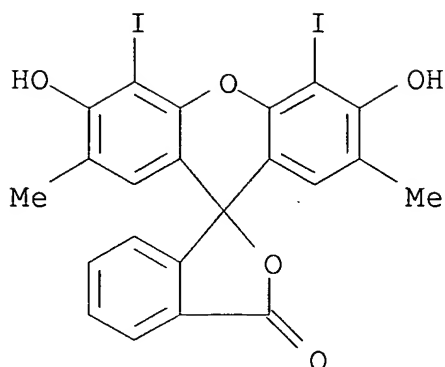
IT 122135-59-5

RL: RCT (Reactant); RACT (Reactant or reagent)
(photoredn. of benzil sensitized by)

RN 122135-59-5 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one,
3',6'-dihydroxy-4',5'-

diiodo-2',7'-dimethyl-, disodium salt (9CI) (CA INDEX NAME)



●2 Na

CC 74-1 (Radiation Chemistry, Photochemistry, and Photographic and Other
Reprographic Processes)
ST photoredn benzil sensitized anthracene **dye**
IT Reduction, photochemical
(of benzil, sensitized by heteroatom-containing anthracene **dyes**)
IT Energy level transition
(intersystem crossing, in photosensitized reduction of benzil by
heteroatom-containing anthracene **dye**)
IT 119-53-9P, Benzoin
RL: FORM (Formation, nonpreparative); PREP (Preparation)
(formation of, in photosensitized reduction of, benzil by
heteroatom-containing
anthracene **dye**)
IT 61-73-4, Methylene blue 65-61-2, Acridine orange 81-88-9,
Rhodamine B
81-93-6, Phenosafranin 581-64-6, Thionine 1787-57-1, Capri blue
3474-67-7 11121-48-5, Rosebengal 16423-68-0 17372-87-1, Eosine
33239-19-9 122135-59-5
RL: RCT (Reactant); RACT (Reactant or reagent)
(photoredn. of benzil sensitized by)

L83 ANSWER 9 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN
1986:511334 Document No. 105:111334 Characteristics of fluoroprobes for
measuring intracellular pH. Graber, Mark L.; DiLillo, Douglas C.;
Friedman, Bradford L.; Pastoriza-Munoz, Enrique (Div. Nephrol.,
Veterans
Adm., Northport, NY, 11768, USA). Analytical Biochemistry, 156(1),
202-12
(English) 1986. CODEN: ANBCA2. ISSN: 0003-2697.
AB Four different fluoroprobes were evaluated to determine their
capabilities and

limitations in measuring intracellular pH by the fluorescent indicator technique with a fluorometer. In vitro, carboxyfluorescein, dimethylcarboxyfluorescein, bis(carboxyethyl)carboxyfluorescein, and 4-methylumbelliferone (4MU) all showed comparably intense fluorescence and excellent pH sensitivity near their resp. pKa values. Major differences were found between 4MU and the fluoresceins in terms of protein binding, concentration effects, bleach rates, and the retention time within cells. Both fluorescence and a fluorescence ratio at pH-sensitive/pH-insensitive excitation wavelengths increased with pH for all compds., and the ratio completely corrected for large changes in the excitation light intensity. In contrast, the ratio showed large artifactual changes as dye concentration increased because of self-quenching effects and spectral shifts. Protein interactions likewise caused spectral shift and ratio aberrancies, but Ca, Mg, and O had no effect on the fluorescence ratios. Apparently, measurements of cell pH by fluorescence techniques are subject to artifacts induced by self-quenching and protein binding. Use of the fluorescence ratio technique does not necessarily correct for these artifacts, and in particular the ratio technique does not correct for changes in fluoroprobe concentration. Because the major artifacts cause the ratios for 4MU and for the fluoresceins to move in opposite directions, an exptl. maneuver can cause a true change in pH if the fluorescence and ratios change in the same direction for these 2 classes of fluoroprobes.

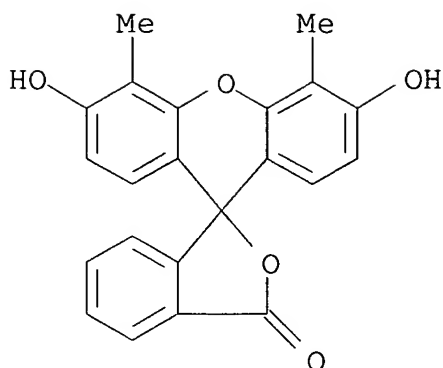
IT 103991-76-0

RL: PROC (Process)

(in pH determination in cells, characterization of)

RN 103991-76-0 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthene]-ar-carboxylic acid,
3',6'-dihydroxy-4',5'-dimethyl-3-oxo- (9CI) (CA INDEX NAME)



D1-CO₂H

CC 9-5 (Biochemical Methods)

IT 90-33-5 72088-94-9 85138-49-4 103991-76-0

RL: PROC (Process)

(in pH determination in cells, characterization of)

L83 ANSWER 10 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN

1986:65188 Document No. 104:65188 Intracellular calibration of a pH-sensitive **dye** in isolated, perfused salamander proximal tubules. Chaillet, J. Richard; Boron, Walter F. (Sch. Med., Yale Univ., New Haven, CT, 06510, USA). Journal of General Physiology, 86(6); 765-94

(English) 1985. CODEN: JGPLAD. ISSN: 0022-1295.

AB The **dyes** 4',5'-dimethyl-5- (and -6-) carboxyfluorescein (Me₂CF) were evaluated for determining the intracellular pH (pHi) of isolated, perfused

proximal tubules of salamander. The intracellular absorbance spectrum,

corrected for the intrinsic absorbance of the tubule, was obtained once per s.

The **dye** was incorporated into tubule cells by exposing them to the membrane-permeable precursor 4',5'-dimethyl-5- (and -6-) carboxyfluorescein diacetate. The introduction of the **dye** had no significant effect on either pHi or cell voltage transients.

Compared

with **dye** contained in a cuvette, intracellular **dye** had a peak absorbance that was red-shifted by .apprx.5 nm and an apparent

pK

that was increased by .apprx.0.3. These differences precluded an accurate

calcn. of pHi by the comparison of intracellular spectra with in vitro calibration spectra. However, when Me2CF was calibrated intracellularly

by using the K-H exchanger nigericin to equalize external pH and pHi, the

dye-derived, steady state pHi was within .apprx.0.1 of the value obtained with pH-sensitive microelectrodes. Furthermore, when pHi was measured simultaneously with dye and microelectrodes during rapid pHi transients, the pHi time courses measured by the 2 methods were

very similar. Thus, the intracellular absorbance spectrum of Me2CF can be

used to measure steady-state pHi and rapid pHi transients reliably, provided the dye is calibrated intracellularly.

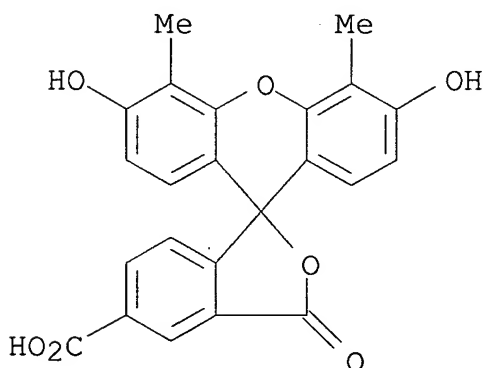
IT 100111-02-2 100111-03-3

RL: ANST (Analytical study)

(in intracellular pH determination in proximal tubule)

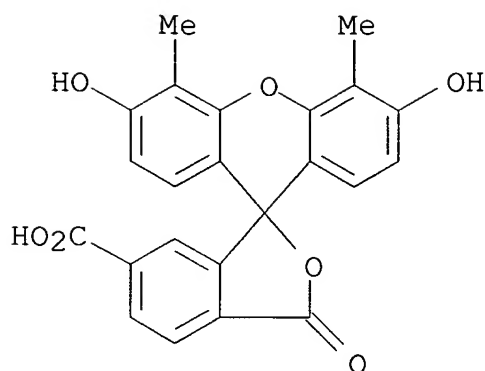
RN 100111-02-2 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthene]-5-carboxylic acid, 3',6'-dihydroxy-4',5'-dimethyl-3-oxo- (9CI) (CA INDEX NAME)



RN 100111-03-3 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthene]-6-carboxylic acid, 3',6'-dihydroxy-4',5'-dimethyl-3-oxo- (9CI) (CA INDEX NAME)



CC 9-5 (Biochemical Methods)

Section cross-reference(s): 12

ST proximal tubule intracellular pH detn; dimethylcarboxyfluorescein pH detn;

spectrophotometry intracellular pH detn; fluorescein dimethylcarboxy pH

detn; salamander proximal tubule **dye** calibration

IT 100111-02-2 100111-03-3 100111-04-4 100111-05-5

RL: ANST (Analytical study)

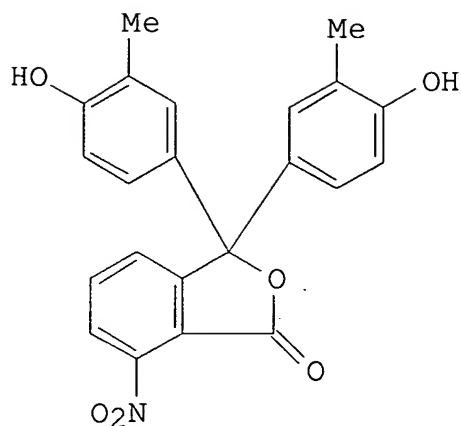
(in intracellular pH determination in proximal tubule)

L83 ANSWER 11 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN

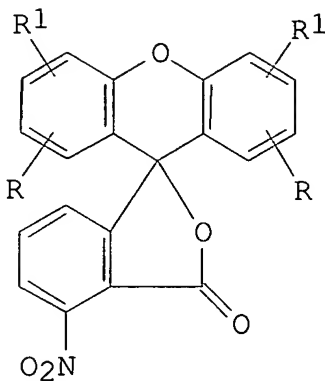
1984:631930 Document No. 101:231930 Studies of the synthesis, properties,

and pharmacological activity of some new phthalein **dyes** and their mercury derivatives. Gupta, Anil K.; Srivastava, Anil K.; Srivastava, Nirupma; Lal, L. B. (Dep. Chem., K. G. K. Postgrad. Coll., Moradabad, India). Vijnana Parishad Anusandhan Patrika, 26(4), 319-25 (Hindi) 1983. CODEN: VPAPA9. ISSN: 0505-5806.

GI



I



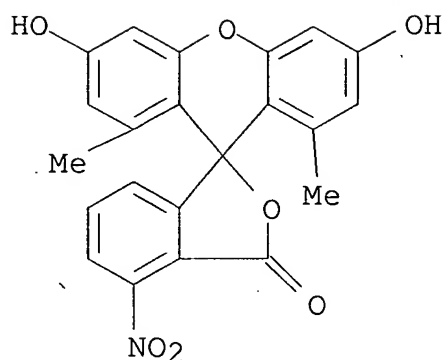
II

AB New phthalein-type **dyes** I [93376-43-3] and II (R = OH, Me; R1 = H, OH) were prepared by condensing 3-nitrophthalic acid [603-11-2] with mono-, di- and trihydroxybenzenes in presence of concentrated H2SO4 as condensing agent. They were examined anal. and spectrophotometrically, and some were mercurated. Na salts of these **dyes** and their Hg derivs. have bactericidal properties.

IT **93376-39-7**
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study) (bactericidal activity of)

RN 93376-39-7 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one, 3',6'-dihydroxy-1',8'-dimethyl-4-nitro-, sodium salt (9CI) (CA INDEX NAME)



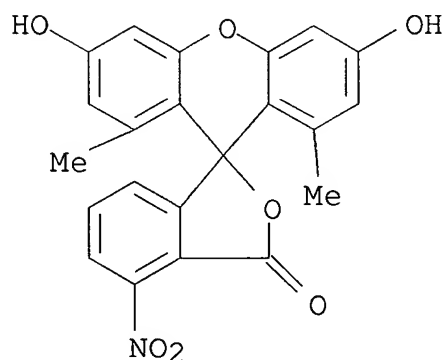
●x Na

IT 93376-30-8P

RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation, mercuration and visible absorption of)

RN 93376-30-8 HCAPLUS

CN Spiro[isobenzofuran-1(3H), 9'-[9H]xanthen]-3-one,
3',6'-dihydroxy-1',8'-
dimethyl-4-nitro- (9CI) (CA INDEX NAME)



CC 41-8 (Dyes, Organic Pigments, Fluorescent Brighteners, and
Photographic
Sensitizers)

Section cross-reference(s): 63

ST phthalein **dye**; nitrophthalein mercury bactericide

IT Bactericides, Disinfectants, and Antiseptics
(nitrophthalein **dyes** and their mercury derivs.)

IT **Dyes**

(nitrophthaleins and mercury derivs., preparation, bactericidal activity and

visible absorption of)

IT 93376-37-5 93376-38-6 **93376-39-7** 93376-40-0 93376-41-1
93376-42-2 93395-43-8

RL: BAC (Biological activity or effector, except adverse); BSU
(Biological

study, unclassified); BIOL (Biological study)

(bactericidal activity of)

IT 93376-29-5P **93376-30-8P** 93376-31-9P 93376-32-0P
93376-43-3P

RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation, mercuration and visible absorption of)

L83 ANSWER 12 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN
1971:45540 Document No. 74:45540 Determination of lipstick-colors.

Unterhalt, Bernard (Inst. Pharm. Chem. Lebensmittelchem., Univ.
Marburg

Lahn, Marburg Lahn, Fed. Rep. Ger.). Zeitschrift fuer
Lebensmittel-Untersuchung und -Forschung, 144(2), 109-12 (German)

1970.

CODEN: ZLUFAR. ISSN: 0044-3026.

AB A chromatog. method is described using a 0.2 g. lipstick aliquot and
petroleum ether and EtOH for estimation of the **dyes** (xanthene compds.
and some pigments approved by German food and drug laws for the
purpose).

Qual. thin-layer chromatog. with AcOEt-BuOH-concentrated NH₄OH
(20:-55:25) and

ProH-dilute NH₄OH (90:10) as eluents on a 0.25 mm layer of silica gel
G or H

separated the **dyes**; preparative thin-layer chromatog. was performed
with 20 + 40 cm plates of silica gel PF254 2 mm thick, with
ProH-NH₄OH (9:1) as developer and MeOH as eluent. Quant. separation

and
purification of certain zones was most effectively accomplished by
column
chromatog. on neutral or acid Al₂O₃, or neutral Al₂O₃ with ProH-NH₄OH
for

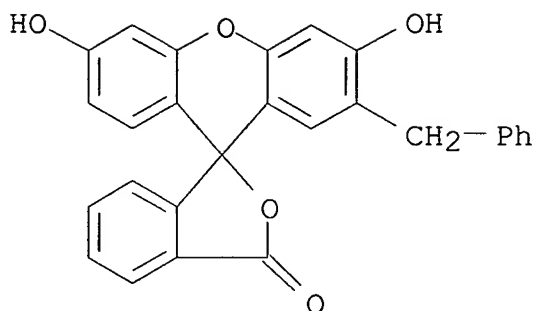
developing. Standard **dyes** were used in identifying the lipstick
comps.

IT **32049-34-6**

RL: ANT (Analyte); ANST (Analytical study)
(determination of, in lipstick)

RN 32049-34-6 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one, 3',6'-dihydroxy-2'-
(phenylmethyl)- (9CI) (CA INDEX NAME)



CC 62 (Essential Oils and Cosmetics)
ST lipstick colors detn; **dyes** lipsticks detn; colorants detn
lipsticks; anal lipsticks
IT Cosmetics
(lipstick, anal. for xanthene **dyes**)
IT **Dyes**
(xanthene, determination in lipstick)
IT 548-26-5 568-63-8 596-03-2 632-68-8 2320-96-9 4618-23-9
6371-82-0 6441-77-6 24545-86-6 32021-46-8 **32049-34-6**
RL: ANT (Analyte); ANST (Analytical study)
(determination of, in lipstick)

L83 ANSWER 13 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN
1964:425899 Document No. 61:25899 Original Reference No. 61:4518b-f
Phthaleins and rhodamines derived from furan-2,3,4,5-tetra-carboxylic
acid. Effect of replacing the benzene ring by a furan ring. Loiwal,
S.
D.; Jain, N. C. (Birla Coll., Rajasthan). J. Indian Chem. Soc.,
41(2),
150-4 (Unavailable) 1964.
GI For diagram(s), see printed CA Issue.
AB The effect of the furan nucleus on the ultraviolet absorption maximum
of
various phthaleins and rhodamines was studied by preparing a number
of the
dyes from furan-2,3,4,5-tetracarboxylic acid (I) and m-C₆H₄(OH)₂
(II), 3,5-(HO)₂C₆H₃Me (III), 1,3,5-C₆H₃(OH)₃ (IV), 1,2,3-C₆H₃(OH)₃
(V),
PhOH (VI), o-MeC₆H₄OH (VII), and m-Et₂NC₆H₄OH (VIII). I was prepared
as
follows: EtO₂CCOCHNaCO₂Et was coupled by means of Br in CHCl₃ to
[EtO₂CCOCH(CO₂Et)]₂ which was cyclized with concentrated H₂SO₄ to the
tetra-Et
ester (IX) of I. Hydrolysis of IX gave I, m. 247° (decompose)
(Me₂CO-C₆H₆). Compds. of general formulas X and XI were obtained by
condensing I with II-VIII according to published procedures (Loiwal
and

Jain, CA 59, 8902h). For example, heating 2.44 g. I with 5.0 g. II at 160-80° for 3 hrs. in the presence of 3-4 drops concentrated H2SO4 gave X

(R1 = R2 = R4 = H, R3 = OH) (XII), m. 260° (decomposition). Other X and

XI were similarly prepared [formula, R1, R2, R3, R4, and m.p. (decomposition)

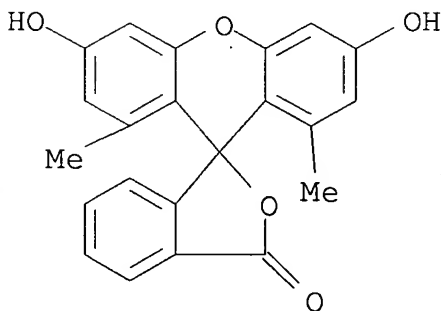
given]: X, Me, H, OH, H, >300°; X, OH, H, OH, H, >300°; X, H, H, OH, OH, >300°; X, H, H, NEt2, H, 206°; XI, OH, H, -, -, 155°; XI, OH, Me, -, -, 242°. X (R1 = H, R2 = R4 = Br R3 = OH), m. 152°, was prepared by brominating XII, and X (R1 = R2 = R4 = H, R3 = OAc), m. 215°, was obtained by acetylating XII with Ac2O in the presence of fused NaOAc. On comparing the absorption data, the replacement of the benzene ring with a furan ring had no appreciable effect. The slightly lower values obtained in some cases could be due to

the lower absorption maximum of furan. Colors of the dyes in EtOH and alkaline EtOH are given.

IT 100770-41-0, Fluorescein, 1',8'-dimethyl-
(spectrum of)

RN 100770-41-0 HCAPLUS

CN Fluorescein, 1',8'-dimethyl- (7CI) (CA INDEX NAME)



CC 46 (Dyes)

IT **Dyes**

(from 2,3,4,5-furantetracarboxylic acid and polyhydroxybenzene compds.)

IT 93044-50-9, 2,3,4,5-Furantetracarboxylic acid, 2,5-diethyl 3,4-di-Me ester

(in preparation of xanthene-type dyes)

IT 77-09-8, Phenolphthalein 2103-64-2, Gallein 2321-07-5, Fluorescein
2468-23-7, Fluoran, 1',3',6',8'-tetrahydroxy- 15086-94-9,

Fluorescein,

2',4',5',7'-tetrabromo- 100770-41-0, Fluorescein,
1',8'-dimethyl-

(spectrum of)

L83 ANSWER 14 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN

1964:31516 Document No. 60:31516 Original Reference No. 60:5668c-e

Dyes derived from substituted phthalic acids. V.

3,6-Endoxohexahydrophthalic acid. Effect of completely saturating and of

introducing an oxygen bridge in the phthalic acid portion of phthalein **dyes**. Loiwal, S. D.; Jain, N. C. (Birla Coll., Rajasthan, India). J. Indian Chem. Soc., 40(9), 785-8 (Unavailable) 1963.

GI For diagram(s), see printed CA Issue.

AB cf. CA 60, 3129h. 3,6-Endoxohexahydrophthalic anhydride (I) when condensed with various phenols gave phthalein **dyes** similar spectrophotometrically to ones previously described. Thus, treatment of I

at temps. between 180 and 200° for 3-4 hrs. in the presence of a trace of H₂SO₄ and the appropriate phenol gave II which could be further

brominated or acetylated. Treatment of I at temps. between 110 and 120° for 14-20 hrs. in a similar manner gave III. The following II were prepared (R₁, R₂, R₃, R₄, and m.p. (decomposition) given): H, H, OH, H,

>300°; Me, H, OH, H, 225°; OH, H, OH, H, >300°; H, H,

NEt₂, H, >300°; H, Br, OH, Br, >300°; H, H, OAc, H,

220°. The following III were prepared (R₁, R₂, and m.p.

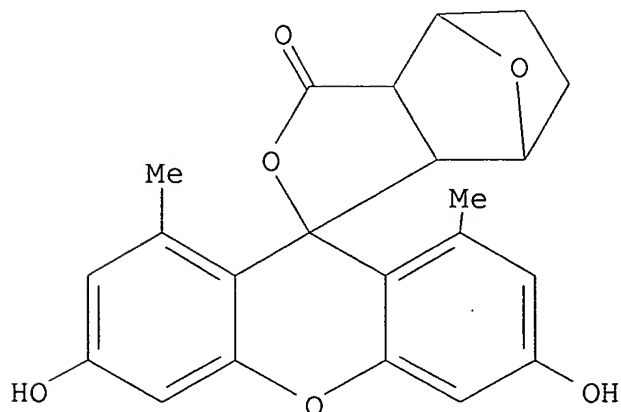
(decomposition)

given): OH, H, 225°; OH, Me, 210°.

IT 101358-43-4, 7-Oxabicyclo[2.2.1]heptane-2-carboxylic acid, 3-(3,6,9-trihydroxy-1,8-dimethylxanthen-9-yl)-, γ -lactone (preparation of)

RN 101358-43-4 HCAPLUS

CN 7-Oxabicyclo[2.2.1]heptane-2-carboxylic acid, 3-(3,6,9-trihydroxy-1,8-dimethylxanthen-9-yl)-, γ -lactone (7CI) (CA INDEX NAME)



CC 46 (Dyes)

IT **Dyes**

(phthalein, from 7-oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid and phenols)

IT 95814-21-4, 7-Oxabicyclo[2.2.1]heptane-2-carboxylic acid, 3-[hydroxybis(p-hydroxyphenyl)methyl]-, γ -lactone 96057-96-4, 7-Oxabicyclo[2.2.1]heptane-2-carboxylic acid,

3-(3,6,9-trihydroxyxanthen-9-yl)-, γ -lactone 96058-01-4, 7-Oxabicyclo[2.2.1]heptane-2-carboxylic acid, 3-(1,3,6,8,9-pentahydroxyxanthen-9-yl)-, γ -lactone 96058-24-1, 7-Oxabicyclo[2.2.1]heptane-2-carboxylic acid, 3-(2,4,5,7-tetrabromo-3,6,9-trihydroxyxanthen-9-yl)-, γ -lactone 96173-05-6, 7-Oxabicyclo[2.2.1]heptane-2-carboxylic acid, 3-[hydroxybis(4-hydroxy-m-tolyl)methyl]-, γ -lactone 96708-26-8, 7-Oxabicyclo[2.2.1]heptane-2-carboxylic acid,

3-(3,6,9-trihydroxyxanthen-9-yl)-, γ -lactone, diacetate 96931-53-2, 7-Oxabicyclo[2.2.1]heptane-2-carboxylic acid, 3-[3,6-bis(diethylamino)-9-hydroxyxanthen-9-yl]-, γ -lactone **101358-43-4**, 7-Oxabicyclo[2.2.1]heptane-2-carboxylic acid, 3-(3,6,9-trihydroxy-1,8-dimethylxanthen-9-yl)-, γ -lactone

(preparation of)

IT 145-73-3, 7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid (preparation of, and **dyes** from)

L83 ANSWER 15 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN

1964:17413 Document No. 60:17413 Original Reference No. 60:3129h,3130a-b

Dyes derived from substituted phthalic acids. IV.

3,4-Dimethyl-5-ethyl- Δ^4 -tetrahydrophthalic acid. Loiwal, S. D.; Jain, N. C. (Birla Coll., Rajasthan). J. Indian Chem. Soc., 40(8),

686-8

(Unavailable) 1963.

GI For diagram(s), see printed CA Issue.

AB cf. CA 59, 8902h. Phthalein or rhodamine **dyes** were prepared by condensing 3,4-dimethyl-5-ethyl- Δ^4 -tetrahydrophthalic anhydride (I) with phenols. Thus, treatment of I at 110-80° for 3-12 hrs. in the presence of a trace of H₂SO₄ and the appropriate phenol gave II or III which could be further brominated or acetylated. The following II

were

prepared (R₁, R₂, R₃, R₄, m.p., color of crystals, color in EtOH and in alkaline

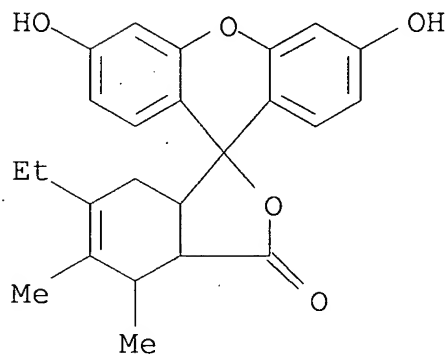
EtOH given): H, H, OH, H, 185°, reddish brown, orange-yellow, pink; Me, H, OH, H, 155°, brown, yellow, light pink; OH, H, OH, H, >300°, red, yellow, orange; H, H, NEt₂, H, 165°, dark pink, pink, intense pink with 1 drop 5N HCl; H, Br, OH, Br, >300°, dark red, blood red, intense red; H, H, OAc, H, 120°, brown, yellow, yellow. The following III were prepared (R and same data given): H,

140°, light brown, yellow, light pink; Me, 165°, light brown, yellowish brown, dark pink.

IT 95622-65-4, 3-Cyclohexene-1-carboxylic acid, 4-ethyl-2,3-dimethyl-6-(3,6,9-trihydroxyxanthen-9-yl)-, γ -lactone 95622-74-5, 3-Cyclohexene-1-carboxylic acid, 4-ethyl-2,3-dimethyl-6-(1,3,6,8,9-pentahydroxyxanthen-9-yl)-, γ -lactone 95958-60-4, 3-Cyclohexene-1-carboxylic acid, 4-ethyl-2,3-dimethyl-6-(2,4,5,7-tetrabromo-3,6,9-trihydroxyxanthen-9-yl)-, γ -lactone 102344-24-1, 3-Cyclohexene-1-carboxylic acid, 4-ethyl-2,3-dimethyl-6-(3,6,9-trihydroxy-1,8-dimethylxanthen-9-yl)-, γ -lactone (preparation of)

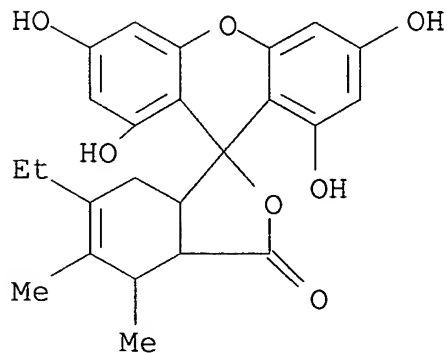
RN 95622-65-4 HCAPLUS

CN 3-Cyclohexene-1-carboxylic acid, 4-ethyl-2,3-dimethyl-6-(3,6,9-trihydroxyxanthen-9-yl)-, γ -lactone (7CI) (CA INDEX NAME)



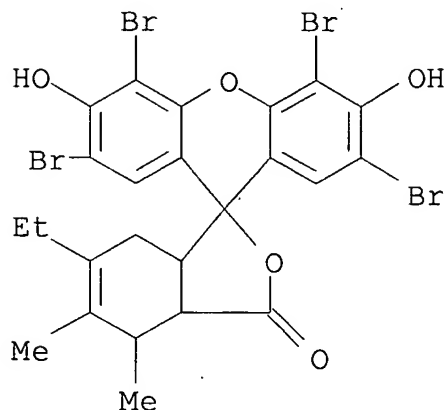
RN 95622-74-5 HCAPLUS

CN 3-Cyclohexene-1-carboxylic acid, 4-ethyl-2,3-dimethyl-6-(1,3,6,8,9-pentahydroxyxanthen-9-yl)-, γ -lactone (7CI) (CA INDEX NAME)



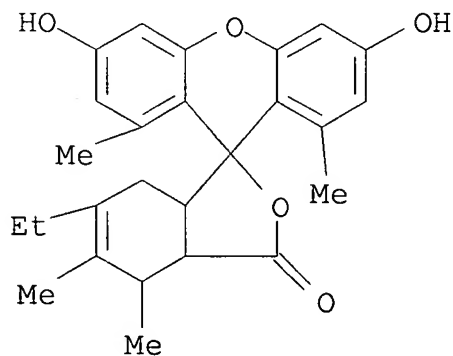
RN 95958-60-4 HCAPLUS

CN 3-Cyclohexene-1-carboxylic acid, 4-ethyl-2,3-dimethyl-6-(2,4,5,7-tetrabromo-3,6,9-trihydroxyxanthen-9-yl)-, γ -lactone (7CI) (CA INDEX NAME)



RN 102344-24-1 HCAPLUS

CN 3-Cyclohexene-1-carboxylic acid,
4-ethyl-2,3-dimethyl-6-(3,6,9-trihydroxy-
1,8-dimethylxanthen-9-yl)-, γ -lactone (7CI) (CA INDEX NAME)



CC 46 (Dyes)

IT **Dyes**

(hydrogenated fluoran derivs.)

IT 95622-08-5, 3-Cyclohexene-1-carboxylic acid, 4-ethyl-6-[hydroxybis(p-hydroxyphenyl)methyl]-2,3-dimethyl-, γ -lactone **95622-65-4**,
3-Cyclohexene-1-carboxylic acid, 4-ethyl-2,3-dimethyl-6-(3,6,9-trihydroxyxanthen-9-yl)-, γ -lactone **95622-74-5**,
3-Cyclohexene-1-carboxylic acid, 4-ethyl-2,3-dimethyl-6-(1,3,6,8,9-pentahydroxyxanthen-9-yl)-, γ -lactone **95958-60-4**,
3-Cyclohexene-1-carboxylic acid, 4-ethyl-2,3-dimethyl-6-(2,4,5,7-

tetrabromo-3,6,9-trihydroxyxanthen-9-yl)-, γ -lactone 96215-28-0,
3-Cyclohexene-1-carboxylic acid, 4-ethyl-2,3-dimethyl-6-(3,6,9-
trihydroxyxanthen-9-yl)-, γ -lactone, diacetate 96765-30-9,
3-Cyclohexene-1-carboxylic acid, 4-ethyl-6-[hydroxybis(4-hydroxy-m-
tolyl)methyl]-2,3-dimethyl-, γ -lactone 102344-24-1,
3-Cyclohexene-1-carboxylic acid,
4-ethyl-2,3-dimethyl-6-(3,6,9-trihydroxy-
1,8-dimethylxanthen-9-yl)-, γ -lactone
(preparation of)

L83 ANSWER 16 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN
1963:448869 Document No. 59:48869 Original Reference No.
59:8902h,8903a-d

Dyes derived from substituted phthalic acids. III.

cis- Δ 4-Tetrahydrophthalic acid. Effect of decreasing unsaturation in
the phthalic acid portion of phthalein **dyes**. Loiwal, S. D.;
Jain, N. C. (Birla Coll., Pilani, India). J. Indian Chem. Soc., 39,
745-8

(Unavailable) 1962.

GI For diagram(s), see printed CA Issue.

AB cf. CA 58, 601b, 5813g. cis- Δ 4-Tetrahydrophthalic anhydride (I) was
prepared and condensed with several phenols and with m-Et₂NC₆H₄OH

(II) to
the corresponding phthaleins and rhodamine-type compds., resp., which
were

studied anal. and spectrophotometrically. The phthalein from
m-C₆H₄(OH)₂

(III) was also brominated and acetylated. Decreasing unsatn. in the
phthalic acid portion of the **dyes** causes only slight variations
in the absorption maximum as compared to the corresponding phthaleins
for the
condensation products from o-MeC₆H₄OH and 3,5-(HO)₂C₆H₃Me with I but
not

for the **dyes** from 1,3,5-C₆H₃(OH)₃ and II with I which show
absorption maximum in the same region as the corresponding phthaleins.
1,3-Butadiene passed into 500 cc. dry C₆H₆ and 196 g. maleic anhydride
yielded I, m. 103-4° (ligroine), which was hydrolyzed to the
corresponding acid, m. 163-4°. I (2.5 g.) and 4.0 g. III heated 3
hrs. at 160-80° in the presence of 4-5 drops concentrated H₂SO₄ gave

IV
(R₁, R₂, R₄ = H; R₃ = OH) (V), reddish brown, m. 245° (decomposition),
orange in EtOH, pink with green fluorescence in alkaline EtOH.

Similarly were

prepared the following IV (R₁, R₂, R₃, R₄, m.p., reaction
temperature, reaction

time in hrs., color of crystals, color in EtOH, and color in alkaline
EtOH

given): Me, H, OH, H, 220° (decomposition), 140-60°, 4,

brown-red, yellow, light pink with green fluorescence; OH, H, OH, H, 280°, 180-200°, 3, red, orange, orange-red; H, H, NEt₂, H, 118°, 100-5°, 3, pink, pink, -(pink in HCl-EtOH). I (2.5 g.) and 6 g. o-MeC₆H₄OH heated 14 hrs. at 110-15° with 8 drops concentrated H₂SO₄ gave VI, whitish brown, m. 165° (decomposition), yellow in

EtOH, purple-pink in alkaline EtOH. V brominated gave the pink-red tetrabromo

derivative, m. 200° (decomposition), blood-red in EtOH, deep pink in alkaline

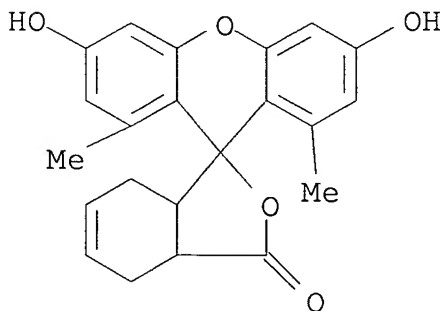
EtOH. V with NaOAc-Ac₂O yielded the yellow-brown diacetate, m. 190°, yellow in EtOH and alkaline EtOH. The ultraviolet absorption maximum of the IV and V in neutral and alkaline alc. medium are tabulated and

compared with those of the corresponding phthaleins.

IT 101358-41-2, 3-Cyclohexene-1-carboxylic acid, 6-(3,6,9-trihydroxy-1,8-dimethylxanthen-9-yl)-, γ -lactone (preparation of)

RN 101358-41-2 HCAPLUS

CN 3-Cyclohexene-1-carboxylic acid, 6-(3,6,9-trihydroxy-1,8-dimethylxanthen-9-yl)-, γ -lactone (7CI) (CA INDEX NAME)



CC 46 (Dyes)

IT **Dyes**
(from phthalic acid derivs.)

IT Unsaturation
(in phthalein **dyes**, effect of decrease in)

IT 88-99-3, Phthalic acid
(derivs., **dyes** from)

IT 85-43-8, 4-Cyclohexene-1,2-dicarboxylic anhydride 94465-41-5,
3-Cyclohexene-1-carboxylic acid, 6-(3,6,9-trihydroxyxanthen-9-yl)-,
 γ -lactone 94544-86-2, 3-Cyclohexene-1-carboxylic acid,
6-(2,4,5,7-tetrabromo-3,6,9-trihydroxyxanthen-9-yl)-, γ -lactone
95957-69-0, 3-Cyclohexene-1-carboxylic acid,
6-(3,6,9-trihydroxyxanthen-9-

yl)-, γ -lactone, diacetate 96057-99-7, 3-Cyclohexene-1-carboxylic acid, 6-(1,3,6,8,9-pentahydroxyxanthen-9-yl)-, γ -lactone 96172-94-0, 3-Cyclohexene-1-carboxylic acid, 6-[hydroxybis(4-hydroxy-m-tolyl)methyl]-, γ -lactone 96274-84-9, 3-Cyclohexene-1-carboxylic acid, 6-[3,6-bis(diethylamino)-9-hydroxyxanthen-9-yl]-, γ -lactone 101358-34-3, 2,7-Naphthalenedisulfonic acid, 3-hydroxy-, compound with C.I. Basic Orange 2 (1:1) 101358-41-2, 3-Cyclohexene-1-carboxylic acid, 6-(3,6,9-trihydroxy-1,8-dimethylxanthen-9-yl)-, γ -lactone 104157-77-9, 1-Anthracenesulfonic acid, 9,10-dihydro-9,10-dioxo-, compound with C.I. Basic Orange 2 105666-86-2, 2,7-Naphthalenedisulfonic acid, 3-hydroxy-, compound with C.I. Basic Orange 2 (1:2) 105948-76-3, 1,8-Anthracenedisulfonic acid, 9,10-dihydro-9,10-dioxo-, compound with C.I. Basic Orange 2 (preparation of)

IT 88-98-2, 4-Cyclohexene-1,2-dicarboxylic acid (preparation of, for **dyes**)

L83 ANSWER 17 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN 1963:33818 Document No. 58:33818 Original Reference No. 58:5814b-d **Dyes** derived from substituted phthalic acids II. 3,4,5,6-Tetraphenyl and 3,4,5,6-tetraphenyl- Δ 3.5-dihydrophthalic acids. Effect of introducing phenyl groups in the phthalic and partly saturated phthalic acids. Loiwal, S. D.; Tewari, J. D. (Univ. Allahabad, India). J. Indian Chem. Soc., 39, 646-50 (Unavailable) 1962.

AB Other phthaleins were prepared similarly by using 3,4,5,6-tetraphenylphthalic anhydride and 3,4,5,6-tetraphenyl- Δ 3.5-dihydrophthalic anhydride. The following 3,4,5,6-tetraphenyl derivs. of I were prepared (R, R1, R2, R3, R4, and m.p. given): --, H, H, OH, H, 285°; Δ 3.5-dihydro, H, H, OH, H, 255°; --, Me, H, OH, H, 220°; Δ 3.5-dihydro, Me, H, OH, H, 245°; --, OH, H, OH, H, 270°; Δ 3.5-dihydro, OH, H, OH, H, >300°; --, H, H, OH, OH, >300°; Δ 3.5-dihydro, H, H, OH, OH, 220°; --, H, H, H, OH, >300°; Δ 3.5-dihydro, H, H, H, OH, 285°; --, H, OH, H, H, 235°; Δ 3.5-dihydro, H, OH, H, H, 255°; --, H, Br, OH, Br, 255°; Δ 3.5-dihydro, H, Br, OH, Br, 225°; --, H, H, OAc, H, 272°; Δ 3.5-dihydro, H, H, OAc, H, 283°. The following II were prepared (R, R1, and m.p. given): --, H, 205°; Δ 3.5-dihydro, H, 130°; --, Me, 280°; Δ 3.5-dihydro, Me, 265°. A comparative study of the absorption maximum of the **dyes** showed that the introduction of Ph groups in the phthalic and dihydrophthalic portions of the **dye**

mols. did not affect the light absorption appreciably. Introduction of Ph

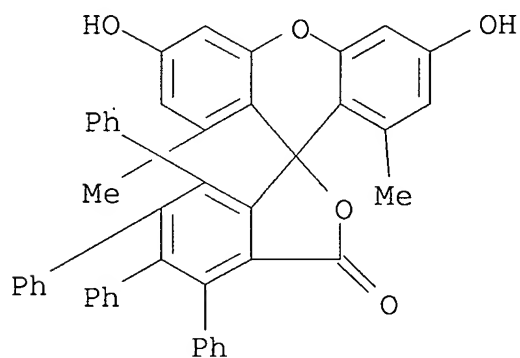
groups in the phthalic acid portion increased the color intensity.

IT 106298-79-7, Fluorescein, 1',8'-dimethyl-4,5,6,7-tetraphenyl-107542-03-0, 2,4-Cyclohexadiene-1-carboxylic acid, 2,3,4,5-tetraphenyl-6-(3,6,9-trihydroxy-1,8-dimethylxanthen-9-yl)-, γ -lactone

(preparation and spectrum of)

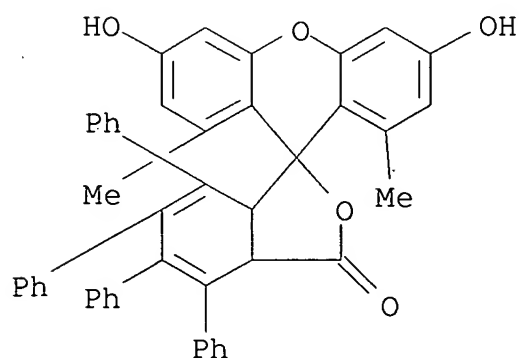
RN 106298-79-7 HCAPLUS

CN Fluorescein, 1',8'-dimethyl-4,5,6,7-tetraphenyl- (7CI) (CA INDEX NAME)



RN 107542-03-0 HCAPLUS

CN 2,4-Cyclohexadiene-1-carboxylic acid, 2,3,4,5-tetraphenyl-6-(3,6,9-trihydroxy-1,8-dimethylxanthen-9-yl)-, γ -lactone (7CI) (CA INDEX NAME)



CC 46 (Dyes)

IT **Dyes**
(from phthalic acid derivs.)

- IT Spectra, visible and ultraviolet
(of **dyes**, from substituted phthalic acids)
- IT 88-99-3, Phthalic acid
(derivs., **dyes** from)
- IT 28672-71-1, 2,4-Cyclohexadiene-1-carboxylic acid, 6-(4,5,9-trihydroxyxanthen-9-yl)-, γ -lactone 28672-72-2,
2,4-Cyclohexadiene-1-carboxylic acid,
6-(3,4,5,6,9-pentahydroxyxanthen-9-yl)-, γ -lactone 28745-11-1, 2,4-Cyclohexadiene-1-carboxylic acid,
6-(2,7,9-trihydroxyxanthen-9-yl)-, γ -lactone 80218-28-6,
Phenolphthalein, 4,5,6,7-tetraphenyl- 88856-55-7,
1,5-Cyclohexadiene-1-carboxylic acid, 6-(3,6,9-trihydroxyxanthen-9-yl)-, γ -lactone,
diacetate 88856-56-8, 2,4-Cyclohexadiene-1-carboxylic acid,
6-(3,6,9-trihydroxyxanthen-9-yl)-, γ -lactone, diacetate
94546-86-8, 1,5-Cyclohexadiene-1-carboxylic acid,
6-(2,4,5,7-tetrabromo-3,6,9-trihydroxyxanthen-9-yl)-, γ -lactone 94688-76-3,
1,5-Cyclohexadiene-1-carboxylic acid,
6-(2,7,9-trihydroxyxanthen-9-yl)-, γ -lactone 94688-78-5, 1,5-Cyclohexadiene-1-carboxylic acid,
6-(4,5,9-trihydroxyxanthen-9-yl)-, γ -lactone 95424-74-1,
2,4-Cyclohexadiene-1-carboxylic acid, 6-(2,4,5,7-tetrabromo-3,6,9-trihydroxyxanthen-9-yl)-, γ -lactone 96057-85-1,
1,5-Cyclohexadiene-1-carboxylic acid, 6-[hydroxybis(p-hydroxyphenyl)methyl]-, γ -lactone 96057-86-2, 2,4-Cyclohexadiene-1-carboxylic acid, 6-[hydroxybis(p-hydroxyphenyl)methyl]-, γ -lactone
96457-25-9, 1,5-Cyclohexadiene-1-carboxylic acid,
6-[hydroxybis(4-hydroxy-m-tolyl)methyl]-, γ -lactone 96972-19-9, 2,4-Cyclohexadiene-1-carboxylic acid,
2,3,4,5-tetraphenyl-6-(2,7,9-trihydroxyxanthen-9-yl)-, γ -lactone 96972-20-2, 2,4-Cyclohexadiene-1-carboxylic acid,
2,3,4,5-tetraphenyl-6-(4,5,9-trihydroxyxanthen-9-yl)-, γ -lactone 96972-22-4, 2,4-Cyclohexadiene-1-carboxylic acid, 6-[hydroxybis(p-hydroxyphenyl)methyl]-2,3,4,5-tetraphenyl-, γ -lactone 97086-05-0,
2,4-Cyclohexadiene-1-carboxylic acid, 2,3,4,5-tetraphenyl-6-(2,4,5,7-tetrabromo-3,6,9-trihydroxyxanthen-9-yl)-, γ -lactone 97118-22-4,
2,4-Cyclohexadiene-1-carboxylic acid, 2,3,4,5-tetraphenyl-6-(3,6,9-trihydroxyxanthen-9-yl)-, γ -lactone, diacetate 97922-80-0,
2,4-Cyclohexadiene-1-carboxylic acid,
6-(1,3,6,8,9-pentahydroxyxanthen-9-yl)-2,3,4,5-tetraphenyl-, γ -lactone 97922-81-1,
2,4-Cyclohexadiene-1-carboxylic acid,
6-(3,4,5,6,9-pentahydroxyxanthen-9-yl)-2,3,4,5-tetraphenyl-, γ -lactone 98016-47-8,
2,4-Cyclohexadiene-1-carboxylic acid, 6-[hydroxybis(4-hydroxy-m-tolyl)methyl]-2,3,4,5-tetraphenyl-, γ -lactone 98945-84-7,

2,4-Cyclohexadiene-1-carboxylic acid, 2,3,4,5-tetraphenyl-6-(3,6,9-trihydroxyxanthen-9-yl)-, γ -lactone 106298-79-7,
Fluorescein, 1',8'-dimethyl-4,5,6,7-tetraphenyl- 106545-53-3,
Fluoran,
3',4',5',6'-tetrahydroxy-4,5,6,7-tetraphenyl- 106545-54-4, Fluoran,
1',3',6',8'-tetrahydroxy-4,5,6,7-tetraphenyl- 106545-55-5,
Fluorescein,
4,5,6,7-tetraphenyl- 106545-56-6, Fluoran, 4',5'-dihydroxy-4,5,6,7-tetraphenyl- 106545-57-7, Fluoran,
2',7'-dihydroxy-4,5,6,7-tetraphenyl-
106630-26-6, Fluorescein, 2',4',5',7'-tetrabromo-4,5,6,7-tetraphenyl-
106767-50-4, Fluorescein, 4,5,6,7-tetraphenyl-, diacetate
107542-02-9,
Phenolphthalein, 3',3''-dimethyl-4,5,6,7-tetraphenyl- 107542-03-0
, 2,4-Cyclohexadiene-1-carboxylic acid, 2,3,4,5-tetraphenyl-6-(3,6,9-trihydroxy-1,8-dimethylxanthen-9-yl)-, γ -lactone
(preparation and spectrum of)

L83 ANSWER 18 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN
1963:33817 Document No. 58:33817 Original Reference No.
58:5813g-h,5814a-d

Dyes derived from substituted phthalic acids I.

82.6-Dihydrophthalic and trans-83.5-dihydrophthalic acids.

Effect of decreasing unsaturation in the phthalic acid portion of phthalein **dyes**. Loiwal, S. D.; Tewari, J. D. (Univ. Allahabad, India). J. Indian Chem. Soc., 39, 641-5 (Unavailable) 1962.

GI For diagram(s), see printed CA Issue.

AB cf. CA 58, 601b. Various phthaleins I and II were prepared by condensing

either 82.6-di-hydrophthalic acid (III) or trans-83.5-dihydrophthalic acid (IV) with different phenols. The I and II were compared with phthaleins from o-C₆H₄(CO₂H)₂; decreasing unsatn. in the phthalic acid portion of phthaleins did not change the λ Xmax. Phthaleins from IV had more color intensity than plithaleins from

either

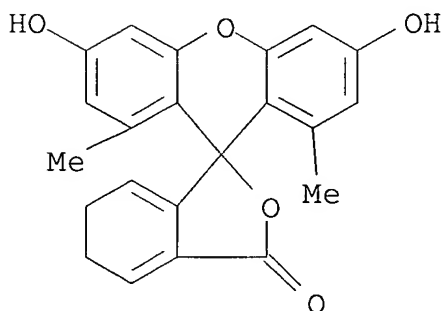
o-C₆H₄(CO₂H)₂ or III. Thus, treatment of III or IV at temps. between 160-200° for 3 hrs. in the presence of a trace of H₂SO₄ and the appropriate phenol gave I which could be further brominated or acetylated. The following dihydro-I were prepared [R (denotes dihydrophthalein type), R₁, R₂, R₃, R₄, and m.p. given]: Δ 2.6, H, H, OH, H, 222°; trans- Δ 3.5, H, H, OH, H, 285°; Δ 2.6, Me, H, OH, H, 205°; trans- Δ 3.5, Me, H, OH, H, 220°; Δ 2.6, OH, H, OH, H, >300°; trans- Δ 3.5, OH, H, OH, H, >300°; Δ 2.6, H, H, OH, OH, >300°; trans- Δ 3.5, H, H, OH, OH, >300°; Δ 2.6, H, H, H, OH, >300°; trans- Δ 3.5, H, H, H, OH, >300°; Δ 2.6, H, OH, H, H, 270° (decomposition); trans- Δ 3.5, H, OH, H, H, >300°; Δ 2.6, H, Br, OH, Br, 200°; trans- Δ 3.5, H,

Br, OH, Br, 220°; Δ2.6, H, H, OAc, H, 155°;
trans-Δ3.5, H, H, OAc, H, 235°. Treating III or IV with
excess phenol and heating 10-14 hrs. at 105-20° gave II. The
following dihydro II were prepared (R, R1, and m.p. given): Δ2.6, H,
244°; trans-Δ3.6, H, 170°; 82.6, Me,
150°; trans-Δ3.5, Me, 148°. Colors of the various
comps. and their solns. are given

IT 100734-04-1, 1,5-Cyclohexadiene-1-carboxylic acid,
6-(3,6,9-trihydroxy-1,8-dimethylxanthen-9-yl)-, γ-lactone
100802-83-3, 2,4-Cyclohexadiene-1-carboxylic acid,
6-(3,6,9-trihydroxy-1,8-dimethylxanthen-9-yl)-, γ-lactone
(preparation and spectrum of)

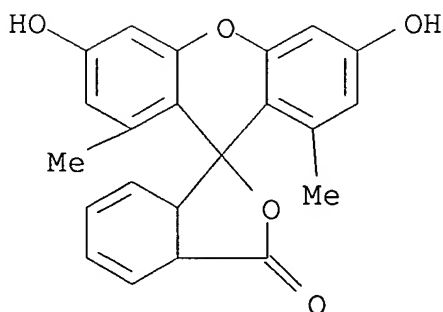
RN 100734-04-1 HCAPLUS

CN 1,5-Cyclohexadiene-1-carboxylic acid, 6-(3,6,9-trihydroxy-1,8-
dimethylxanthen-9-yl)-, γ-lactone (7CI) (CA INDEX NAME)



RN 100802-83-3 HCAPLUS

CN 2,4-Cyclohexadiene-1-carboxylic acid, 6-(3,6,9-trihydroxy-1,8-
dimethylxanthen-9-yl)-, γ-lactone (7CI) (CA INDEX NAME)



CC 46 (Dyes)

IT Dyes

Dyes

(from phthalic acid derivs.)

- IT Spectra, visible and ultraviolet
Spectra, visible and ultraviolet
(of **dyes**, from substituted phthalic acids)
- IT 88-99-3, Phthalic acid
(derivs., **dyes** from)
- IT 4435-09-0, 2,4-Cyclohexadiene-1-carboxylic acid, 6-(3,6,9-trihydroxyxanthen-9-yl)-, γ -lactone 28672-71-1,
2,4-Cyclohexadiene-1-carboxylic acid,
6-(4,5,9-trihydroxyxanthen-9-yl)-,
 γ -lactone 28672-72-2, 2,4-Cyclohexadiene-1-carboxylic acid,
6-(3,4,5,6,9-pentahydroxyxanthen-9-yl)-, γ -lactone 28745-11-1,
2,4-Cyclohexadiene-1-carboxylic acid,
6-(2,7,9-trihydroxyxanthen-9-yl)-,
 γ -lactone 88856-55-7, 1,5-Cyclohexadiene-1-carboxylic acid,
6-(3,6,9-trihydroxyxanthen-9-yl)-, γ -lactone, diacetate
88856-56-8, 2,4-Cyclohexadiene-1-carboxylic acid, 6-(3,6,9-trihydroxyxanthen-9-yl)-, γ -lactone, diacetate 94546-86-8,
1,5-Cyclohexadiene-1-carboxylic acid, 6-(2,4,5,7-tetrabromo-3,6,9-trihydroxyxanthen-9-yl)-, γ -lactone 94688-76-3,
1,5-Cyclohexadiene-1-carboxylic acid,
6-(2,7,9-trihydroxyxanthen-9-yl)-,
 γ -lactone 94688-77-4, 1,5-Cyclohexadiene-1-carboxylic acid,
6-(3,6,9-trihydroxyxanthen-9-yl)-, γ -lactone 94688-78-5,
1,5-Cyclohexadiene-1-carboxylic acid,
6-(4,5,9-trihydroxyxanthen-9-yl)-,
 γ -lactone 94688-93-4, 1,5-Cyclohexadiene-1-carboxylic acid,
6-(1,3,6,8,9-pentahydroxyxanthen-9-yl)-, γ -lactone 94688-94-5,
1,5-Cyclohexadiene-1-carboxylic acid,
6-(3,4,5,6,9-pentahydroxyxanthen-9-yl)-, γ -lactone 95424-74-1, 2,4-Cyclohexadiene-1-carboxylic acid,
6-(2,4,5,7-tetrabromo-3,6,9-trihydroxyxanthen-9-yl)-, γ -lactone
95743-08-1, 2,4-Cyclohexadiene-1-carboxylic acid, 6-(1,3,6,8,9-pentahydroxyxanthen-9-yl)-, γ -lactone 96057-85-1,
1,5-Cyclohexadiene-1-carboxylic acid, 6-[hydroxybis(p-hydroxyphenyl)methyl]-, γ -lactone 96057-86-2, 2,4-Cyclohexadiene-1-carboxylic acid, 6-[hydroxybis(p-hydroxyphenyl)methyl]-, γ -lactone
96457-25-9, 1,5-Cyclohexadiene-1-carboxylic acid,
6-[hydroxybis(4-hydroxy-m-tolyl)methyl]-, γ -lactone 100734-04-1,
1,5-Cyclohexadiene-1-carboxylic acid, 6-(3,6,9-trihydroxy-1,8-dimethylxanthen-9-yl)-, γ -lactone 100802-83-3,
2,4-Cyclohexadiene-1-carboxylic acid, 6-(3,6,9-trihydroxy-1,8-dimethylxanthen-9-yl)-, γ -lactone
(preparation and spectrum of)

Effect of introducing a methyl group at different positions (3 or 4) and

also of decreasing unsaturation in the phthalic acid portion of phthalein

dyes. Loiwal, S. D.; Jain, N. C. (Birla Coll., Pilani). Journal of the Indian Chemical Society, 39, 385-90 (Unavailable) 1962.

CODEN:

JICSAH. ISSN: 0019-4522.

GI For diagram(s), see printed CA Issue.

AB cf. CA 57, 6071c. 3-Methyl- Δ^4 -tetrahydrophthalic anhydride (I) and its 4-Me isomer (II) were condensed with a series of phenols and with m-Et₂NC₆H₄OH (IIa) to yield phthalein and rhodamine derivs. which were studied analytically and spectrophotometrically and compared with similar

compds. obtained from o-C₆H₄(CO₂H)₂. The resorcinol derivs. were also brominated and acetylated. The effect of introducing a Me group at

the 3- or 4-position and also of decreasing the unsatn. in the phthalic

acid portion of the phthaleins is discussed. I (1.66 g.) and 2.2 g. m-C₆H₄(OH)₂ treated at 160° with 3-4 drops concentrated H₂SO₄, heated

3 hrs. at 180°, cooled, and extracted with dilute aqueous NaOH, and the filtered extract acidified with dilute HCl gave III (R₁, R₂, R₄ = H, R₃ = OH)

(IV), brick-red crystals, m. 220° (decomposition) (EtOH), grown-red in EtOH, changing to reddish with green fluorescence with alkali. II (1.66

g.) and 2.2 g. m-C₆H₄(OH)₂ gave similarly the 4-Me isomer (V) of IV, reddish brown, m. 240° (decomposition), reddish brown in EtOH, changing

to reddish with green fluorescence with alkali. I (1.66 g.) and 2.48 g.

resorcinol (VI) heated 4 hrs. at 140-50° with 3-4 drops concentrated H₂SO₄

gave III (R₁ = Me, R₂, R₄ = H, R₃ = OH) (VII), dark red, m. 160-5° (decomposition), yellow in EtOH changing to orange-red with green fluorescence

with alkali. II (1.66 g.) and 2.48 g. VI heated 5 hrs. at 115-20° with 3-4 drops concentrated H₂SO₄ yielded the 4-Me isomer of VII, dark red, m.

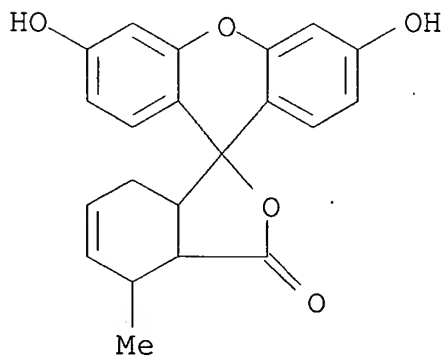
135° (decomposition), yellow in EtOH, changing to orange-green with alkali. I (1.66 g.) and 2.52 g. phloroglucinol (VIII) gave during 4 hrs.

at 180-200° III (R₁, R₃ = OH, R₂, R₄ = H) (IX), orange-red, m. >290° (decomposition), yellow in EtOH, changing to orange-red with alkali. II (1.66 g.) and 2.52 g. VII gave similarly the 4-Me isomer

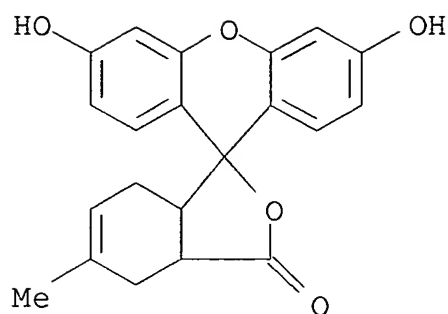
of

IX, orange-red, m. 260° (decomposition), yellow in EtOH, changing to orange-red with alkali. I (1.66 g.) and 2.82 g. IIa heated about 5 hrs. at $110-15^{\circ}$ with concentrated H_2SO_4 , powdered, and extracted with dilute HCl, and the extract acidified with dilute aqueous NaOH precipitated III (R1, R2, R4 = H, R3 = NEt_2) (X), dark pink, m. 120° (decomposition) (EtOH), deep pink in EtOH, intensified with HCl. II (1.66 g.) and 2.82 g. IIa gave similarly the 4-Me isomer of X, red, m. 147° (decomposition), pink in EtOH, intensified with HCl. Bromination of IV gave III (R1 = H, R2, R4 = Br, R3 = OH) (XI), dark red, m. $> 300^{\circ}$ (decomposition), brick red in EtOH, changing to deep pink with alkali. Similarly prepared was the 4-Me isomer of XI, dark red, m. $> 300^{\circ}$ (decomposition), brick-red in EtOH, changing to deep pink with alkali. IV refluxed with Ac_2O and NaOAc yielded the diacetate (XII) of IV, brown, m. 145° (decomposition) (EtOH). The 4-Me isomer of XII, yellow-brown, m. 155° (decomposition), was prepared similarly. I (1.66 g.) and 3 g. PhOH heated 14 hrs. at $110-15^{\circ}$ with 8 drops concentrated H_2SO_4 , dissolved in 50 cc. H_2O , blown with steam, and filtered, the residue extracted with aqueous NaOH, and the extract acidified with dilute HCl yielded XIII (R = OH, R' = H) (XIV), pinkish white powder, m. 125° (decomposition), yellowish brown in EtOH, changing to pink with alkali. II (1.66 g.) and 3 g. PhOH gave similarly the 4-Me isomer of XIV, brownish white powder, m. 147° (decomposition), yellowish brown in EtOH, changing to pink with alkali. I (1.66 g.) and 3 g. o-MeC₆H₄OH gave in the same manner XIII (R = OH, R' = Me) (XV), pinkish white powder, m. 150° (decomposition), reddish brown in EtOH changing to purple pink with alkali. II (1.66 g.) and 3.5 g. o-MeC₆H₄OH gave the 4-Me isomer of XV, pinkish white powder, brown in EtOH, changing to purple pink with alkali. A comparative study of the absorption maximum of the various phthaleins and rhodamines showed that introduction of 3- and 4-Me groups and decreasing the unsatn. in the phthalic acid portion have no appreciable effect on the light absorption, except in the dyes from o-MeC₆H₄OH and from VI and to some extent in the derivs. from m-C₆H₄(OH)₂.

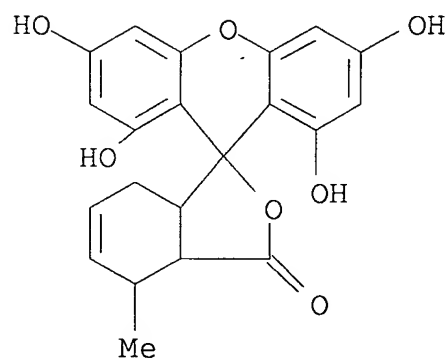
IT 94867-05-7, 3-Cyclohexene-1-carboxylic acid, 2-methyl-6-(3,6,9-trihydroxyxanthen-9-yl)-, γ -lactone 94867-06-8,
3-Cyclohexene-1-carboxylic acid,
3-methyl-6-(3,6,9-trihydroxyxanthen-9-yl)-
, γ -lactone 94867-16-0, 3-Cyclohexene-1-carboxylic acid,
2-methyl-6-(1,3,6,8,9-pentahydroxyxanthen-9-yl)-, γ -lactone
95947-27-6, 3-Cyclohexene-1-carboxylic acid, 2-methyl-6-(2,4,5,7-tetrabromo-3,6,9-trihydroxyxanthen-9-yl)-, γ -lactone
95947-28-7, 3-Cyclohexene-1-carboxylic acid, 3-methyl-6-(2,4,5,7-tetrabromo-3,6,9-trihydroxyxanthen-9-yl)-, γ -lactone
104878-73-1, 3-Cyclohexene-1-carboxylic acid, 2-methyl-6-(3,6,9-trihydroxy-1,8-dimethylxanthen-9-yl)-, γ -lactone 107136-85-6
, 3-Cyclohexene-1-carboxylic acid, 3-methyl-6-(3,6,9-trihydroxy-1,8-dimethylxanthen-9-yl)-, γ -lactone
(preparation of)
RN 94867-05-7 HCAPLUS
CN 3-Cyclohexene-1-carboxylic acid,
2-methyl-6-(3,6,9-trihydroxyxanthen-9-yl)-
, γ -lactone (7CI) (CA INDEX NAME)



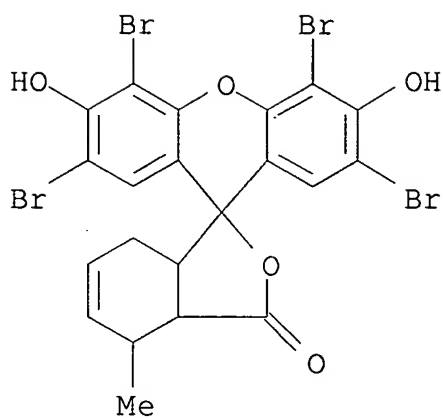
RN 94867-06-8 HCAPLUS
CN 3-Cyclohexene-1-carboxylic acid,
3-methyl-6-(3,6,9-trihydroxyxanthen-9-yl)-
, γ -lactone (7CI) (CA INDEX NAME)



RN 94867-16-0 HCAPLUS
CN 3-Cyclohexene-1-carboxylic acid,
2-methyl-6-(1,3,6,8,9-pentahydroxyxanthen-
9-yl)-, γ -lactone (7CI) (CA INDEX NAME)

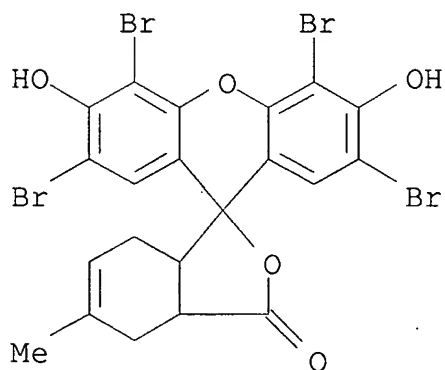


RN 95947-27-6 HCAPLUS
CN 3-Cyclohexene-1-carboxylic acid, 2-methyl-6-(2,4,5,7-tetrabromo-3,6,9-
trihydroxyxanthen-9-yl)-, γ -lactone (7CI) (CA INDEX NAME)



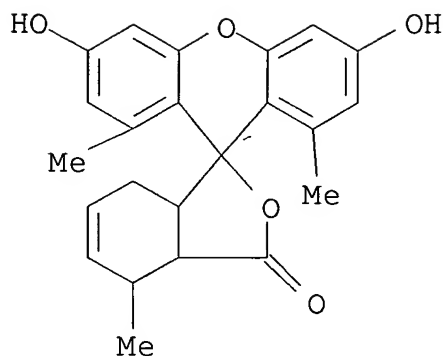
RN 95947-28-7 HCAPLUS

CN 3-Cyclohexene-1-carboxylic acid, 3-methyl-6-(2,4,5,7-tetrabromo-3,6,9-trihydroxyxanthen-9-yl)-, γ -lactone (7CI) (CA INDEX NAME)



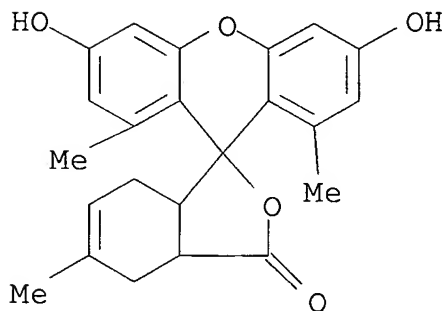
RN 104878-73-1 HCAPLUS

CN 3-Cyclohexene-1-carboxylic acid, 2-methyl-6-(3,6,9-trihydroxy-1,8-dimethylxanthen-9-yl)-, γ -lactone (7CI) (CA INDEX NAME)



RN 107136-85-6 HCAPLUS

CN 3-Cyclohexene-1-carboxylic acid, 3-methyl-6-(3,6,9-trihydroxy-1,8-dimethylxanthen-9-yl)-, γ -lactone (7CI) (CA INDEX NAME)



CC 46 (Dyes)

IT **Dyes**

(phthalein, from 3-methyl- Δ^4 -tetrahydrophthalic acid)

IT 15941-50-1, 4-Cyclohexene-1,2-dicarboxylic acid, 3-methyl-
(**dyes** from)

IT **94867-05-7**, 3-Cyclohexene-1-carboxylic acid, 2-methyl-6-(3,6,9-trihydroxyxanthen-9-yl)-, γ -lactone **94867-06-8**,
3-Cyclohexene-1-carboxylic acid,

3-methyl-6-(3,6,9-trihydroxyxanthen-9-yl)-

, γ -lactone **94867-16-0**, 3-Cyclohexene-1-carboxylic acid,
2-methyl-6-(1,3,6,8,9-pentahydroxyxanthen-9-yl)-, γ -lactone

95817-45-1, 3-Cyclohexene-1-carboxylic acid, 2-methyl-6-(3,6,9-trihydroxyxanthen-9-yl)-, γ -lactone, diacetate 95938-70-8,

3-Cyclohexene-1-carboxylic acid,

6-[hydroxybis(p-hydroxyphenyl)methyl]-2-

methyl-, γ -lactone 95938-71-9, 3-Cyclohexene-1-carboxylic acid,

6-[hydroxybis(p-hydroxyphenyl)methyl]-3-methyl-, γ -lactone

95947-27-6, 3-Cyclohexene-1-carboxylic acid, 2-methyl-6-(2,4,5,7-

tetrabromo-3,6,9-trihydroxyxanthen-9-yl)-, γ -lactone
95947-28-7, 3-Cyclohexene-1-carboxylic acid, 3-methyl-6-(2,4,5,7-tetrabromo-3,6,9-trihydroxyxanthen-9-yl)-, γ -lactone 96267-38-8, 3-Cyclohexene-1-carboxylic acid,
6-[hydroxybis(4-hydroxy-m-tolyl)methyl]-2-methyl-, γ -lactone 96269-24-8, 3-Cyclohexene-1-carboxylic acid, 6-[3,6-bis(diethylamino)-9-hydroxyxanthen-9-yl]-2-methyl-, γ -lactone 97257-17-5, 3-Cyclohexene-1-carboxylic acid, 3-methyl-6-(3,6,9-trihydroxyxanthen-9-yl)-, γ -lactone, diacetate 98274-29-4, 3-Cyclohexene-1-carboxylic acid,
6-[hydroxybis(4-hydroxy-m-tolyl)methyl]-3-methyl-, γ -lactone 104878-73-1, 3-Cyclohexene-1-carboxylic acid, 2-methyl-6-(3,6,9-trihydroxy-1,8-dimethylxanthen-9-yl)-, γ -lactone 107136-85-6, 3-Cyclohexene-1-carboxylic acid, 3-methyl-6-(3,6,9-trihydroxy-1,8-dimethylxanthen-9-yl)-, γ -lactone 108042-44-0, 3-Cyclohexene-1-carboxylic acid,
6-[3,6-bis(diethylamino)-9-hydroxyxanthen-9-yl]-3-methyl-, γ -lactone (preparation of)

L83 ANSWER 20 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN
1962:430119 Document No. 57:30119 Original Reference No. 57:6071c-h
Dyes derived from 4,5-dimethyl- Δ 4-tetrahydrophthalic acid.

I. Effect of introducing methyl groups and also of decreasing unsaturation in the phthalic acid portion of phthalein **dyes**. Loiwal, S. D.; Jain, N. C. (Birla Coll., Pilani). J. Indian Chem. Soc., 39, 251-4 (Unavailable) 1962.

GI For diagram(s), see printed CA Issue.

AB 4,5-Dimethyl- Δ 4-tetrahydrophthalic anhydride (I) [m. 78-9° (petr. ether)] (Farmer and Warren, CA 23, 3674) was condensed with a number of phenols and with m-Et₂NC₆H₄OH (II). The resulting **dyes** (III and IV) were compared spectrophotometrically with similar **dyes** obtained from phthalic acid. I (2 g.) and 2.5 g. resorcinol heated to 160°, the mixture treated with 3-4 drops concentrated H₂SO₄, heated 3 hrs. at 180°, cooled, extracted with dilute NaOH, and the filtered extract treated portionwise with dilute HCl gave III (R = R' = R'' = H, R''' = OH) (V), m. 210° (decomposition) (repptn. from alkaline solution, then EtOH). Similarly **dyes** were prepared (phenol, R, R', R'', R''' of III, and m.p. given): orcinol, Me, H, OH, H, 200° (decomposition) (purified as above); phloroglucinol, OH, H, OH, H, 245° (decomposition); pyrogallol, H, H, OH, OH, 230° (decomposition); and II, H, H, NEt₂, H, >300°. V brominated by the method of Baeyer (Ann. 183, 3(1876)) gave III (R = H,

R' = R''' = Br, R'' = OH), m. >300°. Acetylation of V with Ac2O-fused NaOAc gave III (R = R' = R''' = H, R'' = Ac), m. 150° (decomposition) (EtOH). I (2 g.) and 3.6 g. PhOH heated 14 hrs. at 110-15° in the presence of 8 drops concentrated H2SO4, the semisolid

mass

poured into 50 ml. H2O, steam distilled, the residual solid extracted with very

dilute NaOH, and the extract treated with dilute HCl gave IV (R = OH, R' = H), m.

180° (2:1 EtOH-H2O with C). Similar treatment of 2 g. I and 4 g. o-cresol gave IV (R = OH, R' = Me), m. 200° (decomposition).

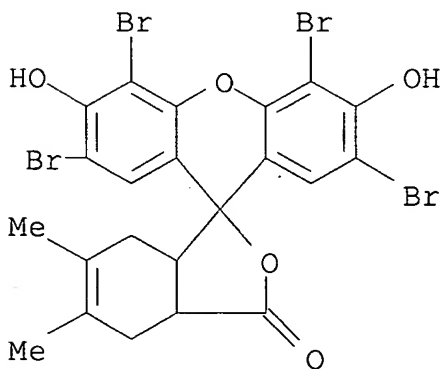
Absorption

maximum of most of the dyes were recorded as well as those of some of the corresponding dyes from phthalic acid.

IT 95139-41-6, 3-Cyclohexene-1-carboxylic acid, 3,4-dimethyl-6-(2,4,5,7-tetrabromo-3,6,9-trihydroxyxanthen-9-yl)-, γ -lactone
95626-04-3, 3-Cyclohexene-1-carboxylic acid, 3,4-dimethyl-6-(3,6,9-trihydroxyxanthen-9-yl)-, γ -lactone 95626-20-3,
3-Cyclohexene-1-carboxylic acid, 3,4-dimethyl-6-(1,3,6,8,9-pentahydroxyxanthen-9-yl)-, γ -lactone 95626-21-4,
3-Cyclohexene-1-carboxylic acid, 3,4-dimethyl-6-(3,4,5,6,9-pentahydroxyxanthen-9-yl)-, γ -lactone 101200-87-7,
3-Cyclohexene-1-carboxylic acid, 3,4-dimethyl-6-(3,6,9-trihydroxy-1,8-dimethylxanthen-9-yl)-, γ -lactone
(preparation of)

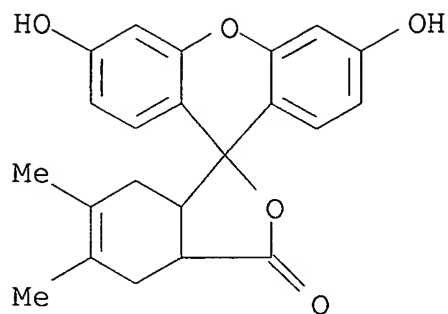
RN 95139-41-6 HCAPLUS

CN 3-Cyclohexene-1-carboxylic acid,
3,4-dimethyl-6-(2,4,5,7-tetrabromo-3,6,9-trihydroxyxanthen-9-yl)-, γ -lactone (7CI) (CA INDEX NAME)



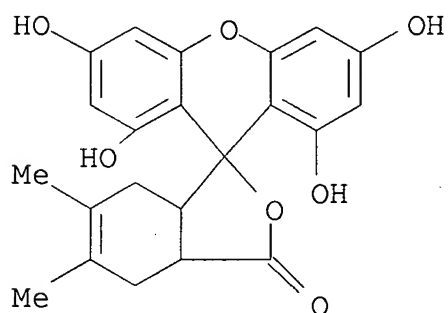
RN 95626-04-3 HCAPLUS

CN 3-Cyclohexene-1-carboxylic acid,
3,4-dimethyl-6-(3,6,9-trihydroxyxanthen-9-yl)-, γ -lactone (7CI) (CA INDEX NAME)



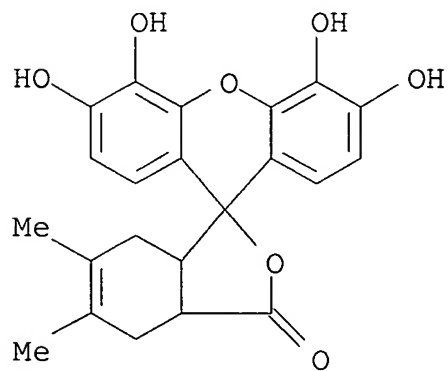
RN 95626-20-3 HCAPLUS

CN 3-Cyclohexene-1-carboxylic acid, 3,4-dimethyl-6-(1,3,6,8,9-pentahydroxyxanthen-9-yl)-, γ -lactone (7CI) (CA INDEX NAME)



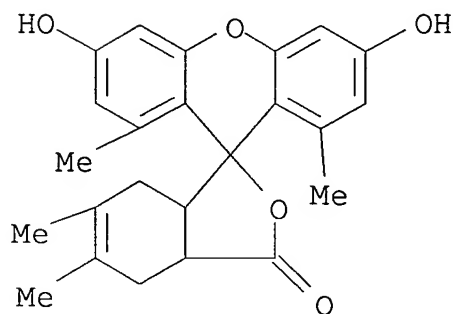
RN 95626-21-4 HCAPLUS

CN 3-Cyclohexene-1-carboxylic acid, 3,4-dimethyl-6-(3,4,5,6,9-pentahydroxyxanthen-9-yl)-, γ -lactone (7CI) (CA INDEX NAME)



RN 101200-87-7 HCAPLUS

CN 3-Cyclohexene-1-carboxylic acid, 3,4-dimethyl-6-(3,6,9-trihydroxy-1,8-dimethylxanthen-9-yl)-, γ -lactone (7CI) (CA INDEX NAME)



CC 44 (Dyes)

IT **Dyes**

(from 4,5-dimethyl-4-cyclohexene-1,2-dicarboxylic acid, fluorescent)

IT Spectra, visible and ultraviolet

(of fluorescein-type **dyes** from 4,5-dimethyl-4-cyclohexene-1,2-dicarboxylic acid)

IT 22228-48-4, 4-Cyclohexene-1,2-dicarboxylic acid, 4,5-dimethyl- (**dyes** from)

IT **95139-41-6**, 3-Cyclohexene-1-carboxylic acid, 3,4-dimethyl-6-(2,4,5,7-tetrabromo-3,6,9-trihydroxyxanthen-9-yl)-, γ -lactone

95626-04-3, 3-Cyclohexene-1-carboxylic acid, 3,4-dimethyl-6-(3,6,9-trihydroxyxanthen-9-yl)-, γ -lactone **95626-20-3**,

3-Cyclohexene-1-carboxylic acid, 3,4-dimethyl-6-(1,3,6,8,9-pentahydroxyxanthen-9-yl)-, γ -lactone **95626-21-4**,

3-Cyclohexene-1-carboxylic acid, 3,4-dimethyl-6-(3,4,5,6,9-pentahydroxyxanthen-9-yl)-, γ -lactone 96172-93-9,

3-Cyclohexene-1-carboxylic acid,

6-[hydroxybis(p-hydroxyphenyl)methyl]-3,4-

dimethyl-, γ -lactone 96371-62-9, 3-Cyclohexene-1-carboxylic acid,

6-[3,6-bis(diethylamino)-9-hydroxyxanthen-9-yl]-3,4-dimethyl-,

γ -lactone 96670-74-5, 3-Cyclohexene-1-carboxylic acid,

3,4-dimethyl-6-(3,6,9-trihydroxyxanthen-9-yl)-, γ -lactone, diacetate

97081-78-2, 3-Cyclohexene-1-carboxylic acid,

6-[hydroxybis(4-hydroxy-m-

tolyl)methyl]-3,4-dimethyl-, γ -lactone **101200-87-7**,

3-Cyclohexene-1-carboxylic acid, 3,4-dimethyl-6-(3,6,9-trihydroxy-1,8-dimethylxanthen-9-yl)-, γ -lactone

(preparation of)

L83 ANSWER 21 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN

1957:17167 Document No. 51:17167 Original Reference No.

51:3526a-i,3527a-c

Dye theory. Triarylmethane dyes of the biphenyl series.

II. Theilacker, Walter; Berger, Wilhelm; Popper, Peter (Tech. Hochschule Hannover, Germany). Chemische Berichte, 89, 970-83 (Unavailable) 1956.

CODEN: CHBEAM. ISSN: 0009-2940. OTHER SOURCES: CASREACT 51:17167. AB cf. C.A. 45, 7077h; preceding abstract The Ph homologous crystal violet

carbinol (I) has been prepared and a new method for the preparation of the Ph

homologous malachite green carbinol (II) is given. Fuming HNO₃ (8 cc.) is added slowly to 13.2 g. (p-PhC₆H₄)₂CO in 80 cc. concentrated H₂SO₄ at 5-7°, the mixture kept overnight, decomposed with ice-H₂O, the precipitate

extracted with boiling Na₂CO₃, dried, extracted with hot BuOH, and the residue

recrystd. from dioxane-H₂O, giving 30%

bis(2,4'-dinitrobiphenyl)ketone,

slightly yellow needles, m. 223-4°. Treating 6 parts

4-O₂NC₆H₄C₆H₄CO₂H-4 (III) with 5 parts PCl₅ 8 hrs. with frequent shaking,

and heating the mixture 8 hrs. on a water bath give

4'-nitrobiphenyl-4-

carbonyl chloride (IV), needles, m. 192-3°. Heating 19 g. IV in 100 cc. C₆H₆ with 15 g. anhydrous AlCl₃ 4 hrs. on a water bath, distilling the

C₆H₆, decomposing the residue with iced HCl, and recrystg. the precipitate give 68%

4-nitro-4'-benzoyldiphenyl (V), slightly yellow needles, m. 156-7°.

V is also prepared in 40% yield by heating 100 g. p-O₂NC₆H₄Ph, 125 g. AlCl₃,

and 220 g. BzCl in 400 cc. PhNO₂ 6 hrs. at 100°, 3 hrs. at 150°, and 5 hrs. at 170°, pouring the solution into HCl (1:1), steam distilling the mixture, and extracting the precipitate with

Me₂CO. Reduction of V

with SnCl₂ in HCl at 100° gives 73% 4-amino-4'-benzoylbiphenyl (VI), yellow leaflets, m. 143-4°. Heating 2.7 g. VI, 2.6 g. anhydrous K₂CO₃, and 47 g. MeI 6 hrs. at 180°, distilling the excess MeI, and crystallizing the residue from H₂O give 27% trimethyl(4'-benzoyl-4-biphenyl)lammonium iodide (VII) which, thermally decomposed, gives 4-dimethylamino-4'-benzoylbiphenyl (VIII), yellow leaflets, m. 182-3°. Heating 2 g. VI, 4 g. K₂CO₃, and 46 g. MeI in an autoclave 3 hrs. at 210° gives 46% VII. Adding dropwise (3 hrs.) 50 g. Me₂SO₄ to 7 g. VI in 75 cc. 1-ClOH₇Me and 75 cc. 40% NaOH heated at 160° and pouring the cold mixture into H₂O give 16% VIII; from the mother liquors 45% 4-methylamino-4'-benzoyldiphenyl, m. 175°, is isolated. Heating 10 g. IV, 6 g. Ph₂, and 5.2 g. AlCl₃ in 90 cc.

PhNO₂ 1

hr. each at 120, 130, and 140°, decomposing the cold mixture with H₂O, steam distilling it, extracting the precipitate with hot dilute HCl and dilute Na₂CO₃, and

crystallizing the residue from AcOH give 69%

4-phenyl-4'-(p-nitrophenyl)-

benzophenone (IX), leaflets, m. 258-9° (2,4-dinitrophenylhydrazone, red needles, m. 288-90°). Adding in small portions 4 g. IX to 170 cc. concentrated H₂SO₄ and 30 cc. AcOH at -5°, then adding 1.15 g.

KNO₃

in concentrated H₂SO₄ and AcOH, keeping the mixture several hrs. at 0°,

decomposing it with ice, and washing the precipitate with KOH-MeOH and MeOH give 55%

4,4'-bis(p-nitrophenyl)benzophenone (X), light yellow needles, m. 243°. Reduction of 0.33 g. X in 100 cc. PhOMe 5 hrs. at 70°

with 18 mg. used PtO₂ gives 65% 4-(p-nitrophenyl)-4'-(p-aminophenyl)benzophenone, m. 308-10°. Reduction of 1 g. X in 170 cc. PhOMe with 55 mg. PtO₂ 3 hrs. at 145° gives 80%

4,4'-bis(p-aminophenyl)benzophenone (XI), yellow crystals, m.

252-4°, which is also obtained in 58% yield when 30 g. Fe shavings and 200 cc. concentrated HCl are added in small portions to 7.5 g. X in 450 cc.

cyclohexanol at 140-50°, the precipitate extracted with hot C₅H₅N, and the

extract diluted with H₂O. Diazotizing 0.73 g. XI in 50 cc. dioxane and 180 cc.

HCl (1:1) at -5° with the calculated amount of 0.5% NaNO₂ solution, stirring

the mixture several hrs., filtering it, adding 1 g. urea and a solution of 10

g. CuCl in 100 cc. concentrated HCl, heating it on a water bath, diluting it with

H₂O, and chromatographically purifying the precipitate give

4,4'-bis(p-

chlorophenyl)benzophenone, needles, m. 280-1°. Adding dropwise 75

g. Me₂SO₄ to 5.6 g. XI in 450 cc. PhOMe and 60 g. NaOH in 130 cc. H₂O at

150-60°, steam distilling the mixture, and recrystg. the precipitate from PhCl

give 52% 4,4'-bis(p-dimethylaminophenyl)benzophenone (XII), orange-yellow

crystals, sinter 285°, m. 295-300°. Reduction of 10 g.

4-iodo-4'-nitrobiphenyl in 200 cc. cyclohexanol with 17.5 g. Fe shavings

and 125 cc. concentrated HCl gives 83% 4-iodo-4'-aminobiphenyl, m. 167°,

which (7.5 g.) is heated in 75 cc. 1-C₁₀H₇Me in a Cu flask with 50% NaOH,

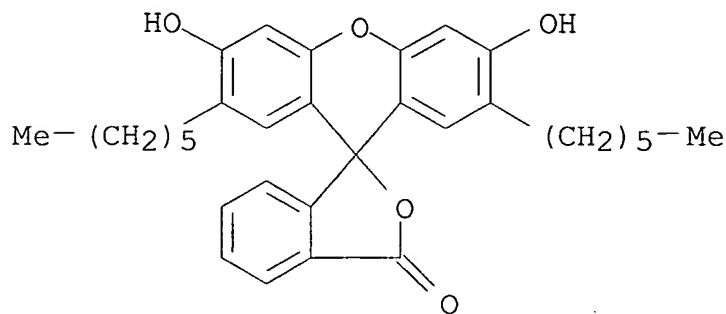
then 35 cc. Me₂SO₄ added (2 hrs.), and the cooled solution poured into H₂O giving 74% 4-iodo-4'-dimethylaminobiphenyl (XIII), m. 224°. Adding slowly in a N atmospheric 2.2 g. VIII in 20 cc. tetrahydrofuran (THF) to a Grignard reagent from 2.5 g. XIII in 100 cc. THF, refluxing the mixture 24 hrs., distilling the THF, pouring the residue into NH₄Cl, and keeping it 12 hrs. give 3.3 g. precipitate, m. 140-60°, which is fractionally crystallized from PhMe, giving 3 fractions: (a) a slightly soluble product, m. above 250° (probably a quaternary Ph derivative); (b) a dark yellow fraction, m. 170-200°; (c) a yellow product, m. 70°. Fractions b and c (2.5 g.) are retreated with the same amount of Grignard reagent and the product isolated as before giving 11% phenylbis(4'-dimethylamino-4-biphenyl)carbinol (XIV) (Ph homologous II), yellow crystals, m. 218°; its solution in AcOH turns green on heating. Adding, in a N atmospheric, 0.9 g. finely powdered anhydrous XII to a Grignard reagent from 5 g. XIII in 50 cc. THF, refluxing the mixture 12 hrs. with stirring, pouring the concentrated solution into NH₄Cl solution, extracting the precipitate with C₆H₆, and adding cyclohexane to the extract give 0.5 g. tris(4'-dimethylamino-4-biphenyl)carbinol (Ph homologous I) (XV), fine green-yellow crystals, m. 160-180° (decomposition). It dissolves in H₂SO₄ and in HClO₄ with a deep red color, in AcOH (cold) a faintly reddish brown, (hot) a deep blue color, turning reddish brown again on cooling. The black-brown residue from the C₆H₆ extraction, on recrystn. from PhCl, gives a gray-green crystalline (putative) p,p'-bisdimethylaminoquaterphenyl, m. around 350°. Diphenyl(4'-dimethylamino-4-biphenyl)carbinol (XVI), prepared according to Morton and Wood (C.A. 34, 4077), needles, m. 178-9°. The absorption spectra (AS) of XIV and XV in AcOH-Ac₂O are given and compared with those of II and I at 20, 100, and 117°, and that of diphenyl(4-dimethylaminophenyl)carbinol in AcOH; they are discussed in detail. The AS show that these color formations belongs to dye salts of the type of II and I.

IT 124119-87-5, Fluorescein, 2',7'-dihexyl-

(preparation of)

RN 124119-87-5 HCAPLUS

CN Spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one, 2',7'-dihexyl-3',6'-dihydroxy- (9CI) (CA INDEX NAME)



CC 10 (Organic Chemistry)

IT 7285-77-0, 4-Biphenylamine, 4'-iodo- 41567-99-1, 4-Biphenylcarbonyl chloride, 4'-nitro- 62750-40-7, Benzophenone,

4,4'-bis(p-aminophenyl)-

71969-79-4, Benzophenone, 4-(p-aminophenyl)- 74974-24-6,

Benzophenone,

4,4'-bis(p-chlorophenyl)- 94869-73-5, Benzophenone, 4-(p-

dimethylaminophenyl)- 96711-89-6, Methanol, bis(4'-dimethylamino-4-biphenyl)phenyl- 100869-70-3, 4-Biphenylamine,

4'-iodo-N,N-dimethyl-

101884-28-0, Benzophenone, 4-(p-nitrophenyl)- 102078-74-0,

Benzophenone,

4-(p-methylaminophenyl)- 102884-15-1, Benzophenone, 4,4'-bis(p-nitrophenyl)- 102884-46-8, Benzophenone,

4-(p-nitrophenyl)-4'-phenyl-

102884-80-0, Benzophenone, 4-(p-aminophenyl)-4'-(p-nitrophenyl)-

103166-62-7, Benzophenone, 4,4'-bis(p-dimethylaminophenyl)-

103327-17-9,

Benzophenone, 4-(p-nitrophenyl)-4'-phenyl-,

(2,4-dinitrophenyl)hydrazone

103401-29-2, Methanol, tris(4'-dimethylamino-4-biphenyl)-

114791-99-0,

Methanol, (4'-dimethylamino-4-biphenyl)diphenyl- 117878-74-7,

p-Quaterphenyl-4,4',4'',4'''-diamine, N,N,N',N'-tetramethyl- 124119-87-5

, Fluorescein, 2',7'-dihexyl-

(preparation of)

IT 74-82-8, Methane

(triaryl derivs., in preparation of dyes)

=>